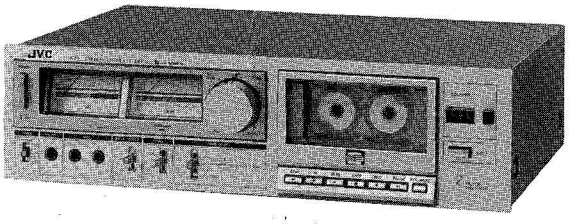
JVC

# SERVICE MANUAL

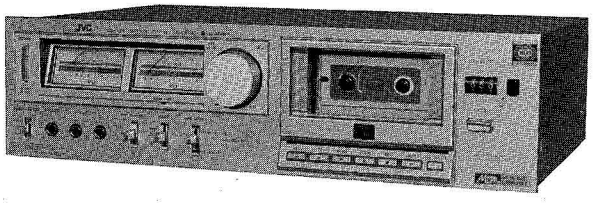
MODEL

## KD-A33 A/B/C/E/J/U

STEREO CASSETTE DECK



KD-A33 A/C/J/U



KD-A33 B/E

No. 4189
March 1980

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# Specifications

**Type** : Stereo cassette deck
**Track system** : 4-track, 2-channel
**Tape speed** : 1-7/8 inch/sec (4.8 cm/sec)
**Frequency response** :
(0 VU recording)
Metal tape *1; 30–12,500Hz (±3dB)
SA/Chrome tape *2; 30–8,000Hz (±3dB)
SF/Normal tape *3; 30–8,000Hz (±3dB)
(-20 VU recording)
Metal tape *1; 20–18,000Hz
30–16,000Hz (±3dB)
SA/Chrome tape *2; 20–18,000Hz
30–16,000Hz (±3dB)
SF/Normal tape *3; 20–17,000Hz
30–15,000Hz (±3dB)
Surpasses DIN 45 500
**Note:** *1 ... SCOTCH METAFINE or Equivalent
*2 ... TDK SA or Equivalent
*3 ... MAXELL UD or Equivalent
**S/N ratio** : 60dB (from peak level, weighted, Metal tape)
The S/N is improved by 5dB at 1kHz and by 10dB above 5kHz with ANRS on.
(DIN 45 500 weighted)
**Effect of Super ANRS** : (normal tape)
**Improvement of S/N**: the same as with ANRS
**Improvement of frequency response:**
0VU recording; 6dB at 10kHz
+5VU recording; 12dB at 10kHz
**Improvement of distortion:**
0VU recording; 3% or less at 10kHz
+5VU recording; 3% or less at 10kHz
**Wow and flutter** : 0.04% (WRMS),
0.14% (DIN 45 500)
**Crosstalk** : 65dB (1kHz)
**Harmonic distortion** : K3; 0.4%, THD; 1.0%
(metal tape, 1kHz 0VU)

**Bias** : AC bias
**Erasure** : AC erasure (85kHz)

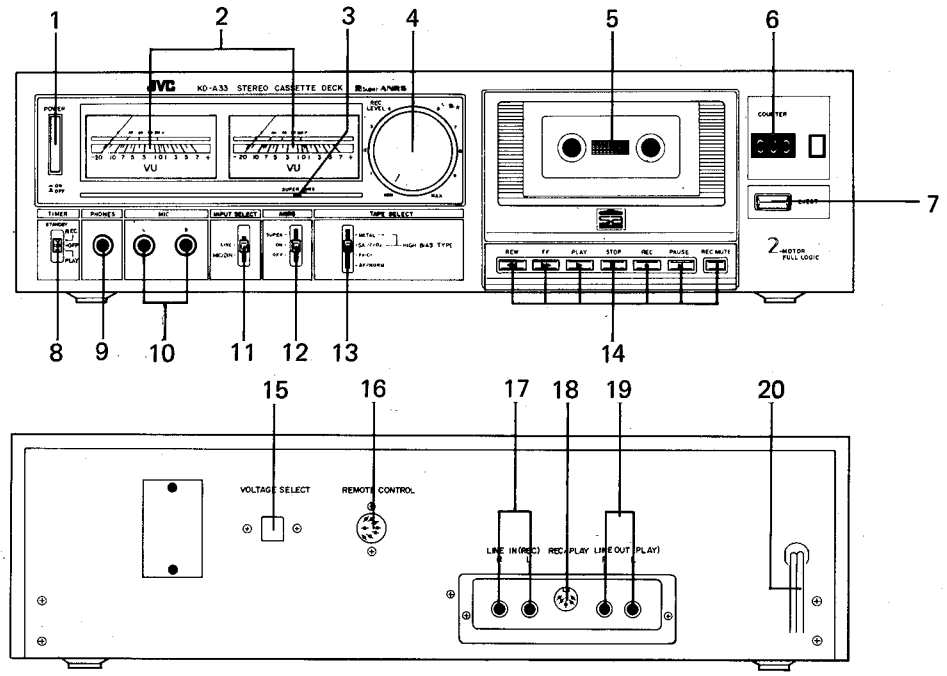
**Heads** : 2 heads
SEN ALLOY head for recording/playback and 2-gap SEN ALLOY head for erasure
**Motors** : Electronic Gaverned DC motor (for Capstan)
DC motor (for Reel)
**Fast forward time** : 85 sec. with C-60 cassette
**Rewind time** : 85 sec. with C-60 cassette
**Semiconductors** : 7 ICs, 57 transistors, 31 diodes
**Input terminals** :
Mac jack x 2 ; Max. sensitivity; 0.2mV (-72dBs)
Matching impedance; 600Ω–10kΩ
Input jack x 2 ; Min. input level; (80mV (-20dBs)
Input impedance; 100kΩ
**Output terminals** :
Output jack x 2 ; Output level; 300mV
Output impedance; 5kΩ
Phones jack x 1 ; Output level; 0.3mW (8Ω)
Matching impedance; 8Ω–1kΩ
**DIN socket** : Min. input level; 0.1mV/kΩ
Input impedance; 10kΩ
Output level; 300mV (8Ω)
Output impedance; 5.5kΩ
Matching impedance; 50kΩ or more
**Power requirement** : AC 240/220/120V, 50/60Hz (KD-A33A/B/C/E/J)
AC 240/220/120/100V, 50/60Hz (KD-A33U)
**Power consumption** : 21W
**Dimensions** : 16-1/2" (420mm) W
4-3/4" (120mm) H
11-7/8" (300mm) D
**Weight** : 14.7 lbs (6.7 kg)

Design and specifications are subject to change without notice.

# Features

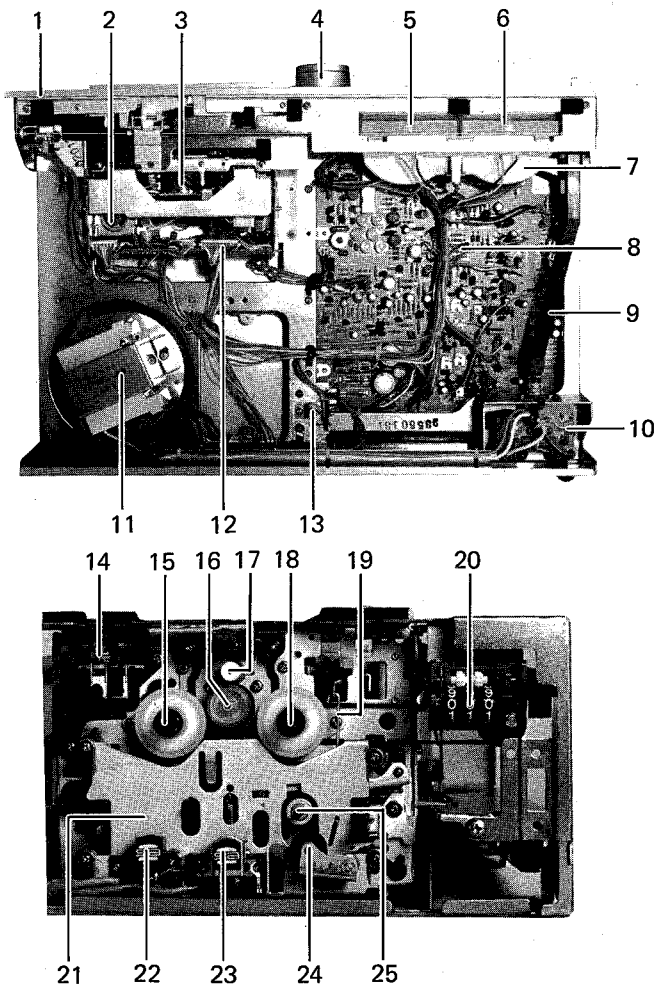
- Single lever 4-stage tape select switch makes the KD-A33 compatible with all types of tape including the new metal Tape format.
- Full logic control with 2-motor independent drive mechanism.
- SA (SEN-ALLOY) record/play head with wear resistance comparable with ferrite and sound quality better than Permalloy.
- Highly efficient SA (SEN-ALLOY) erase head capable of erasing high-coercivity Metal Tape.
- Self-illuminating control buttons clearly indicate the operational mode. (REC, PLAY and PAUSE)
- ANRS and Super ANRS greatly reduce tape hiss-noise and improve linearity at high frequencies.
- Continuous stand-by mechanism with REC-OFF-PLAY switch for greater facility in unattended recording.
- REC MUTE button, convenient for leaving a non-recorded section on the tape between programs.
- Remote Control terminal for operating the deck from a distance using the optional R-50E Remote Control Unit.

# Controls and Connections




1 POWER switch
2 VU meters
3 Super ANRS indicator
4 REC LEVEL controls (forward knob – Left channel; rearward knob – Right channel)
5 Cassette holder
6 Tape counter/counter reset button
7 EJECT button
8 TIMER STANDBY switch
9 PHONES jack
10 MIC jacks
11 INPUT SELECT switch
12 ANRS switch
13 TAPE SELECT switch
14 Cassette operation buttons
◀◀ REW (rewind) button
▶▶ FF (fast forward) button
▶ PLAY button
■ STOP button
o REC (record) button
II PAUSE button
REC MUTE button
15 Voltage select switch
16 REMOTE CONTROL socket
17 LINE IN (REC) terminals
18 REC/PLAY socket (DIN socket)
19 LINE OUT (PLAY) terminals
20 Power cord

# Main Parts Location




1. Front panel assembly
2. DC solenoid for playback
3. Reel motor
4. Variable resistor (INPUT LEVEL control)
5. Right channel level meter
6. Left channel level meter
7. Meter cover
8. Main Amp. P.W. Board assembly
9. Remote bar for power switch
10. Power switch P.W. Board
11. Power transformer
12. Mecha control P.W. Board assembly
13. IC903 (Power supply integrant circuit with heat sink bracket)

[Mechanical parts]

14. Switch holder (left switch)
15. Supply reel assembly
16. Idler assembly unit
17. Pully of reel motor
18. Take-up reel assembly
19. Connecting wire (for play solenoid)
20. Counter assembly
21. Slide base assembly
22. Erase head
23. REC/PB head
24. Pinch roller assembly
25. Capstan

# Maintenance

To get long, trouble-free service, maintenance is important. Do not forget cleaning and demagnetizing.

**Cleaning**

After long use, the heads and tape part – capstan, pinch roller, etc. – will become dirty with dust or magnetic particles. Dirty heads cause imperfect erasing or high frequency drop-off. A dirty capstan and pinch roller will cause unstable tape speed, leading to increased wow and flutter. Always keep them clean by following the procedure below.

**1. Heads**

1) Push Eject button to open the cassette holder.
2) Use the head cleaning stick provided to wipe the surface where the tape comes into contact with the head. (It is effective to moisten the cotton with alcohol.)

**2. Pinch rollar and capstan**

Do the same method as heads.

**3. Cabinet**

When the cabinet becomes dirty, wipe it with a soft cloth soaked with a neutral cleaning solution of a polishing cloth.

* Do not use thinner or benzine.

**Demagnetizing**

The heads are made from a material resistant to magnetization, but after long use they become magnetized.

A magnet brought into their vicinity can magnetize the heads, causing excess noise. If noise seems to have increased, demagnetize the heads with a head demagnetizer through the following procedure.

1. Turn the POWER switch OFF.
2. Wrap the tip of the demagnetizer with vinyl tape or soft cloth so as not to damage the head surface. Switch on the demagnetizer and bring it close to the head.
3. Move the tip of the demagnetizer slowly first to the left and right, then up and down in front of the head. Gradually move it away from the head and switch it off at a distance of more than 30 cm. (12")
4. The erase head need not be demagnetized. The capstan shaft and tape guide should be demagnetized in the same way as the record/playback head.

* Do not bring a magnetized metallic object (a screwdriver, for example) near the head as this will increase noise.

# Removal of the Main Parts

Observe care in handing the parts since the parts are small in size and the distance between them are short due to a deck design aimed mainly at compactness and high performance.

- **Enclosure assembly parts**

Cassette door .....

Depress the EJECT button to open the cassette door.

Slide off the cassette door upwards (about 5mm) to unlock its pawls of both sides.

Remove the cassette door forward.

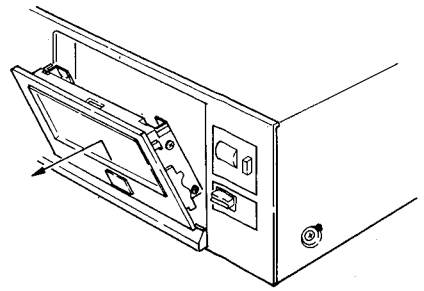


Fig. 1

Top cover .....

Remove 4 screws fastening the top cover.

Control knobs (REC LEVEL) and Lever knobs (INPUT SELECT, ANRS and TAPE SELCT) .....

Pull off them forward.

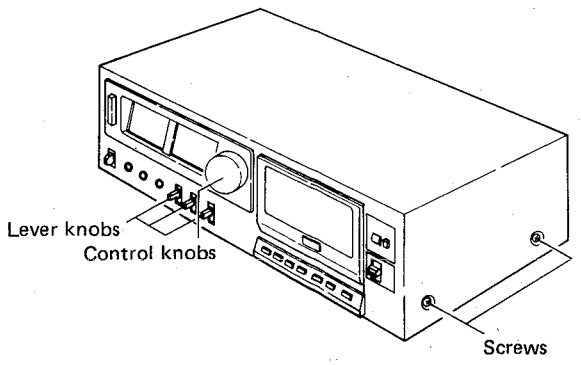



Fig. 2

Bottom cover .....

Remove 5 screws fastening the bottom cover.

Mecha. Control switches assembly .....

(When adjusting or replacing REC/PB head or Erase head)

1) Remove the wires of the control switches from the wire clamp and 2 wire sockets after having removed the top cover.
2) Remove 2 screws positioned below the control switches (on the bottom of the deck) and pull the control section forwards — no need of removing the front panel assembly.

Front plate assembly .....

1) Remove a screw fastening the bracket to mechanical ass'y. — Fig. 3
2) Remove 5 screws (3 screws on upper side and 2 screws on bottom side.) fastening the front plate assembly. — Fig. 4, 5

(Front plate is removed with cassette holder and air dumper related parts.)

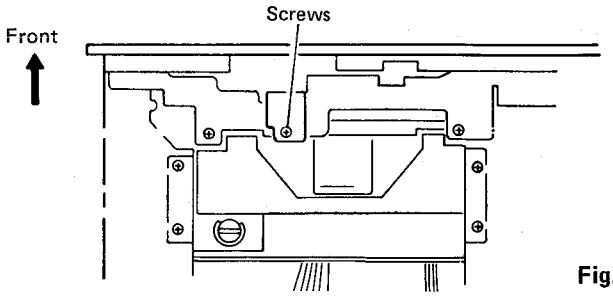
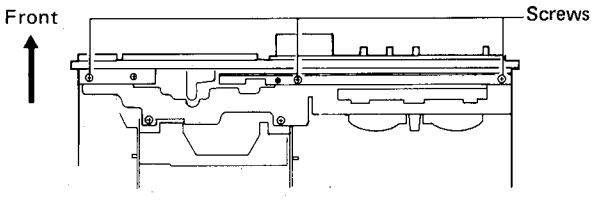
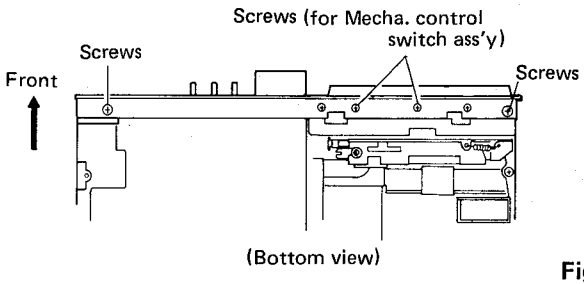



Fig. 3




(Top view)

Fig. 4



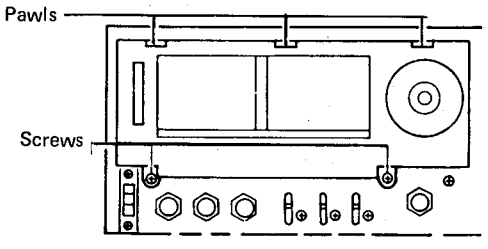

(Bottom view)

Fig. 5

Meter Escutcheon

1) Remove 2 screws fastening the meter escutcheon. (under side.)
2) Remove 3 pawls holding the meter escutcheon (upper side.)

(Meter escutcheon is removed with power knob and LED P.W. Board assembly.)




(Front view)

Fig. 6

Removal of the level meter

To remove 3 pawls of the meter cover, open the frame of front bracket to upper side and then, remove the level meter with meter cover to rear side.

(To remove the level meter, the meter escutcheon need not remove.)

● **Electrical parts**

Mechanical control P.W. Board assembly .....
Remove a screw fastening Mecha. control P.W. Board (on mecha. bracket)

Main amp. P.W. Board assembly .....

1) Related parts of front bracket
Remove 3 screws fastening the lever switches (INPUT SELECT, ANRS and TAPE SELECT)
2) Remove 4 screws fastening the main amp. P.W. board. (on bottom side)
3) Remove 2 screws fastening the escutcheon of pin jack ass'y to rear panel.
4) Pull off the P.W. board to rear and under sides.

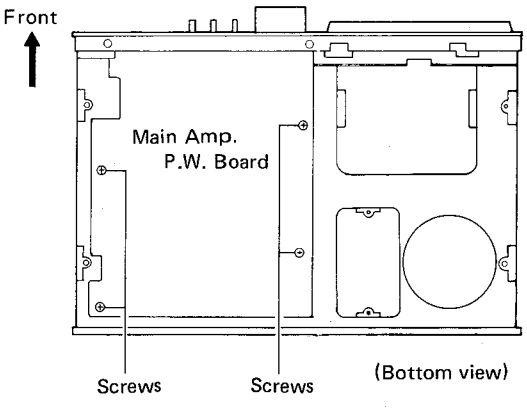



Fig. 7

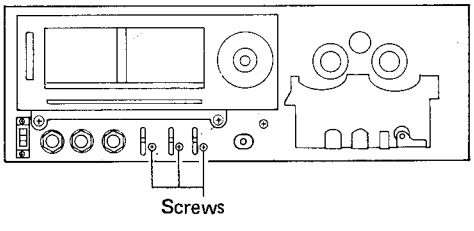



Fig. 8

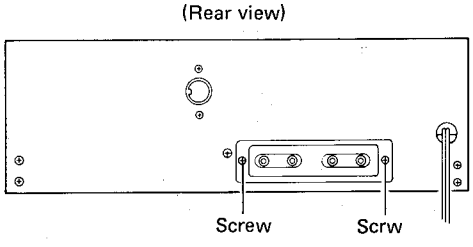



Fig. 9

● **Mechanical assembly**

1. Remove a screw fastening the bracket of mechanical ass'y – (page 5, Fig. 3)
2. Remove 2 screws fastening the front bracket (upper side)
3. Remove a screw fastening the front bracket (right side)
4. Remove 4 screws fastening the amp. chassis (2 screws each)

**Note:** When assembly the mechanical ass'y .....
Insert the mechanical ass'y to front bracket from rear side, pushing the shift arm from upper side (holding the shift lever tip to upperside and sliding the mechanical ass'y on the amp. chassis, and then, fasten each screws in the same method as at removing, after to check the shift lever tip position to front of the eject bracket.
When fastening the shift arm, push the eject button to check the switch (left side of shift arm) operation.

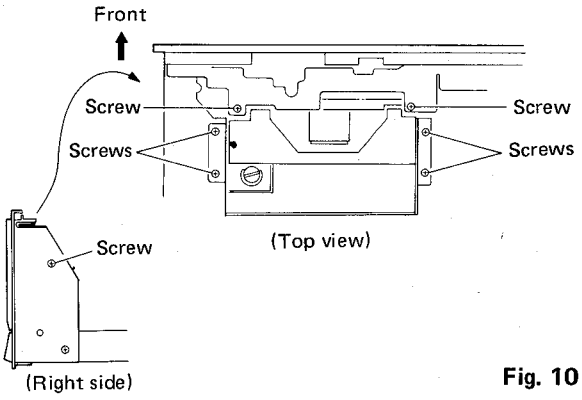



Fig. 10

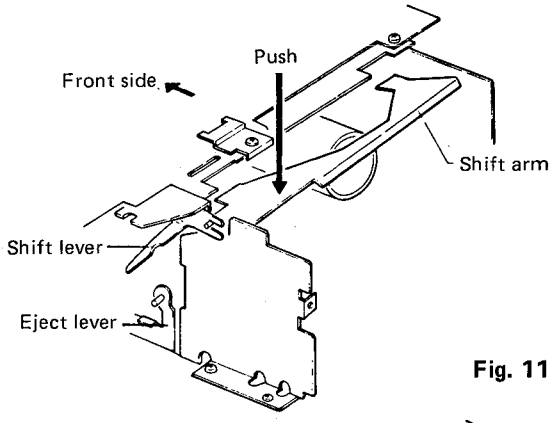



Fig. 11

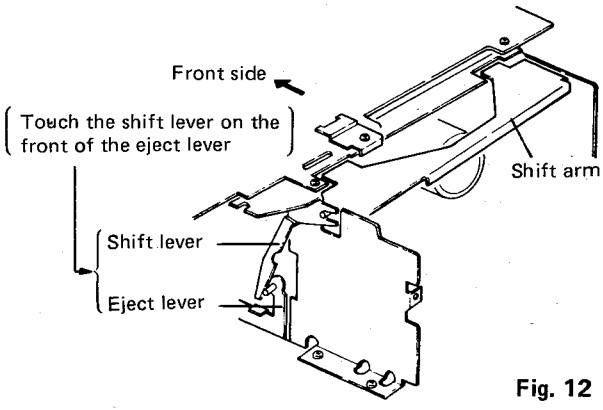



Fig. 12

- **Mechanical parts**

1. REC/PB head .....
   Remove a screw ①
   Work loose a screw ② for adjustment.
2. Erase head .....
   Remove a screw ③
   Work loose a screw ④ for adjustment.
3. Pinch roller arm ass'y .....
   Remove an E-ring ⑤ holding its assembly. Pull it off from the shaft.
4. Supply reel disc .....
   Pull out the reel disc stopper ⑥ and pull out its disc from shaft.
5. Take-up reel disc .....
   Pull out the reel disc stopper ⑦ and remove the counter belt, pull out its disc from shaft.

**Note:** (1) Remove the reel disc stoppers with a piece of sheet metal inserted between the reel disc and the stopper. (When assembling the reel disk, the stopper need a new parts. (the stopper can not use again.)
(2) Be careful not to stain the counter belt.

6. Reel motor .....
   Remove 3 screws ⑧ fastening the reel motor.
7. Capstan motor .....
   1) Remove a screw ⑨ fastening the rubber stopper.
   2) Remove the capstan belt from the motor pulley.
   3) To remove the motor, turn it in counter-clockwise direction and pull it out backward (with 3 cushions and 3 screws for fastening the motor).

**Note:** When replacing the motor, check the following points.
(1) Is the motor placed in correct position? (Don't make the motor's position deflective.)
(2) Does the capstan belt run in the center of the motor pulley?

(Front view)

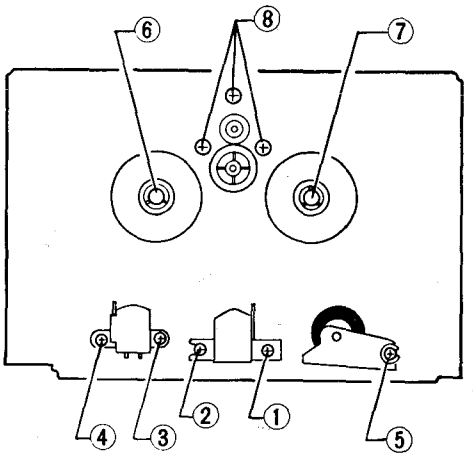



**Fig. 13**

(Rear view)

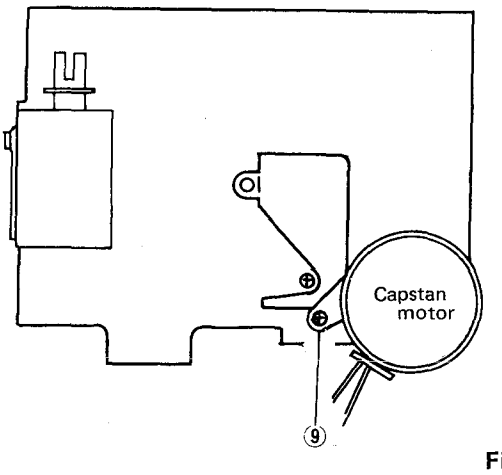


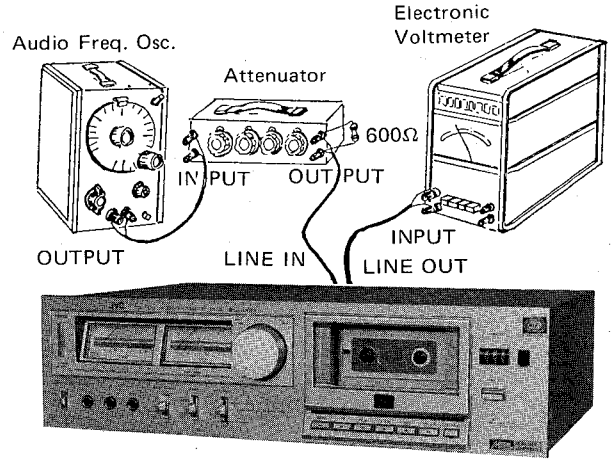

**Fig. 14**

# Main Adjustments

## [I] Equipment and measuring instruments used for adjustment

**1. Electrical adjustment**

1) Electronic voltmeter
2) Audio frequency oscillator
   (range: 50–20kHz and output 0dB with impedance 600Ω)
3) Attenuator
4) Standard tapes for REC/PB
   Maxell UD – SF tape
   TDK SA – SA tape
   SCOTCH METAFINE – Metal tape
   } or equivalent
5) Reference tapes for playback (JVC Test Tape)
   VTT-658 (for head azimuth adj.)
   VTT-656 (for motor speed, wow flutter adj.)
   VTT-664 (for Reference level 1kHz)
   VTT-675N (for playback frequency response)
6) Resistors
   100Ω (for measurement of the bias current)
   600Ω (for attenuator matching)




KD-A33

**2. Mechanical adjustment**

1) Gauge for checking the head position.
2) Torque gauge
3) Blank tape (C-120) for tape running checker.

## [II] Adjustment and repair of the mechanism

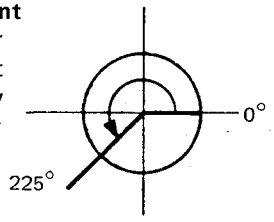
**TROUBLESHOOTING HINTS**

**1. Azimuth adjustment and head replacement**

1) Remove the wires of the control switches from the wire clamps after having removed the top cover.
2) Remove the two screws positioned below the control switches (on the bottom of the deck) and pull the control section forwards.
3) With the control section pulled out, azimuth adjustment and/or head replacement can be performed.
   With the JVC cassette deck series of KD-A6, KD-A5 and KD-A8 models, the adjustment of replacement can be performed more easily than with conventional cassette decks which require removal of the entire mechanical section for the adjustments and/or replacements.

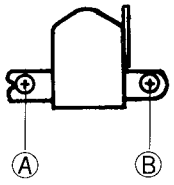
**2. Tape-to-head contract adjustment**

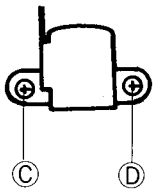
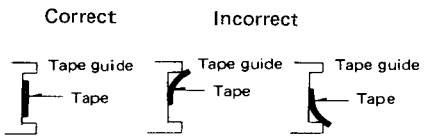
1) Turn the adjusting screw for aligning the erase head until it stops. Then, turn the screw in the reverse direction by 225° (a 5/8 revolution).




2) Check the tape-to-head contact using a C-120 tape having pads.
3) Check it again with a Metal tape.
   Checking method:
   Record a 400Hz or 1kHz signal with 0VU + 20dB. Erase the recording. Checking if the erasing is satisfactorily performed.
4) After adjustment, apply screw bond on the adjusting screw to prevent its loosening.

(Adjust the mechanism or confirm that it is in normal operating condition prior to the adjustment of the electrical circuit.)

| Item | Adjustment | Adjusting point | Standard value | Remarks |
|---|---|---|---|---|
| Adjusting record/playback head position   | 1. Connect an electronic voltmeter to the LINE OUT terminals.<br>2. Play back the VTT-658 test tape.<br>3. Adjust the head angle with the screw Ⓐ until the reading of the electronic voltmeter becomes maximum for both channels.<br>4. After adjusting, set the screw with screw bond. | Screw Ⓐ | Maximum | If the head is worn, disconnected or exceedingly magnetized so as not to provide the necessary characteristics, replace it with a new one.<br>After replacement, the head position adjustment as well as the playback level adjustment, the bias current adjustment and the recording level adjustment are all necessary.<br>If the output difference between the left and right channels exceeds 3 – 4dB, the head is defective.<br>Replace it with a new one. |

| Item | Adjustment | Adjusting point | Standard value | Remarks |
|---|---|---|---|---|
| Adjusting erase head height   | Employ a special cassette (C-120) from which parts of the casing, where the erase head, record/playback head and capstan engage, has been cut away. Perform tape transport with the cassette tape. Adjust the screw Ⓒ until the tape runs in the center of the erase head tape guide. (See "Troubleshooting hints" aforesaid.)   | Screw Ⓒ | | Be sure to perform this adjustment after replacing the erase head. |
| Adjusting motor speed | Connect a speed meter (an electronic counter) to the LINE OUT terminals. Play back the VTT-656 test tape. Adjust the semi-fixed resistor in the motor until the reading of the speed meter is 3000Hz. | Semi-fixed resistor in the motor | 3000Hz | If the speed meter functions as a wow and flutter meter, also, connect the deck to the INPUT terminals of the meter. |
| Checking playback torque | Employ a torque testing cassette tape for the checking, or remove the cassette cover and use a torque gauge. | | 40 – 70 gr-cm | If the standard torque is not obtained, replace the take-up disc assembly. |
| Checking fast forward torque | Measure the torque in the fast forward mode in the same manner as in the above. | | More than 70 gr-cm | If the standard torque is not obtained, perform the following.<br>1. Clean the capstan belt, the idler circumference, the motor pulley, the take-up reel disc circumference, the flywheel circumference, etc.<br>2. Replace the belt and idler. |
| Checking rewind torque | Measure the torque in the rewind mode in the same manner as in the above. | | More than 70 gr-cm | If the standard torque is not obtained, clean the capstan belt, idler, motor pulley, flywheel circumference, rewinding idler circumference, left reel disc circumference, etc. |
| Checking wow and flutter | Connect a wow and flutter meter to the LINE OUT terminals. Play back the VTT-656 test tape. Check to see if the reading of the meter is within 0.04% (WRMS). | | | If the reading becomes moving value even if conforming to the standard, a re-claim may be raised. Repairs are necessary. |

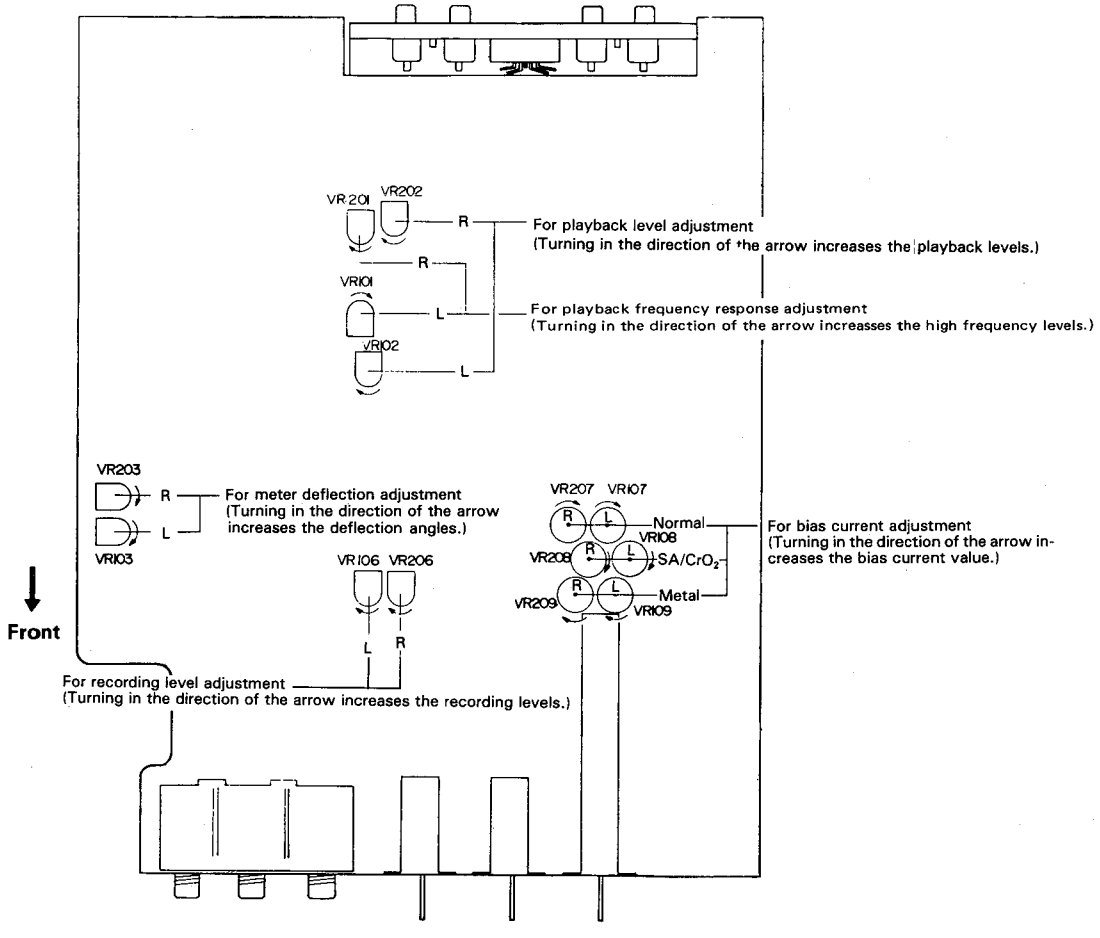
## [III] Repair of wow flutter

If wow and flutter increase, check the following points. If there is defect in revolving parts, the wow and flutter generated will increase in proportion to the number of revolutions.
Play a 3000Hz test tape, and defective part can be detected from the sound.

| Section | Trouble | Repair |
|---|---|---|
| Capstan and flywheel | Capstan shaft has excessive run-out.<br>Flywheel turns heavily.<br>(shaft seisure, thrust play, etc.) | Replace flywheel.<br>Clean the capstan shaft and the groove in the flywheel.<br>Apply oil to the metal position.<br>Replace the capstan assembly. |
| Pinch roller | Rough rotation (Deformation scratches, or dust)<br>The angular position of the pinch roller is not correct.<br>The pinch roller pressure is not correct. | Replace pinch roller, or pinch roller spring.<br>Clean the pinch roller or apply oil to the rotary shaft.<br>Adjust the pinch roller so that it is parallel with the capstan shaft.<br>Replace the pinch roller spring. |
| Belt | Belt has undue run-out.<br>Belt is dirty or slippery. | Clean the belt.<br>Replace the belt. |
| Back tension | Back tension is irregular, or back tension is too strong. | Replace back tension spring (under supply disc). |
| Motor | Motor shaft has undue run-out.<br>Motor pulley is oily and dusty. | Replace motor.<br>Clean motor pulley. |

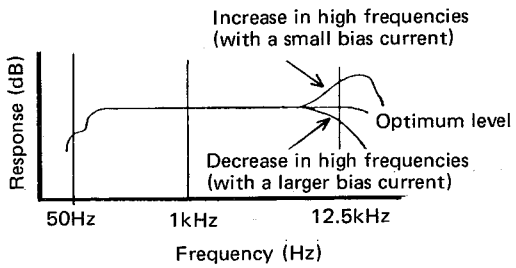
## [IV] Electrical adjustments location

**Main Amp. P.W. Board assembly (Top view)**



## [V] Electrical circuit adjustment procedure

In the steps marked by an asterisk (*), adjustment should be performed, however, only checking is sufficient with steps other than those.
Adjustment should be performed in the order of steps 1, 2, 3, .....
Perform this adjustment with the ANRS switch set to OFF.

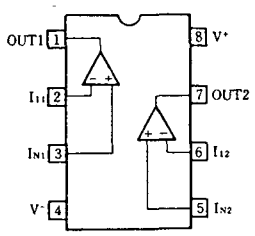
| Step | Item | Adjustment | Adjusting point | Standard value | Remarks |
|---|---|---|---|---|---|
| 1 * | Adjusting playback level | 1. Playback the VTT-664 Reference tape (1kHz) with the tape select switch set to the SF/NORM position.<br>2. Adjust VR102 and VR202 until the LINE OUT becomes about −8dBs. | VR102<br>202 | −8dBs | This adjustment becomes necessary when a change in playback level results (for example, due to head replacement). |
| 2 * | Playback frequency response | Playback test tape VTT-675N (1kHz, 10kHz) for following adjustment.<br>1) Adjust VR101 and VR201 so that 10kHz signal and 1kHz signal gains become flat response. | VR101<br>201 | | |
| 3 * | Adjusting VU meter deflection | 1. Set the cassette deck to its recording mode.<br>2. Apply a 1kHz, approx. −10dBs signal to the LINE IN terminals.<br>3. Adjust the recording level controls until the signal is available at −8dBs at the LINE OUT terminals.<br>4. Adjust VR103 and VR203 until the VU meters deflect to 0. | VR103<br>203 | 0VU | Perform the adjustment when the parts are replaced. |
| 4 * | Checking record/-playback frequency response | Record 1kHz, 50Hz and 12.5kHz signals at an input level of 0VU to −20dB.<br>Playback the tape.<br>Check to see that the 50Hz and 12.5kHz signal output deviations fall within the standard range, using the 1kHz signal output as a reference. | For SF/NORM tape: VR107<br>207<br>For SA/CrO2 tape: VR108<br>208<br>For Metal tape: VR109<br>209 | Reference frequency; 1kHz<br>0 ± 3dB at 50Hz<br>0 ± 3dB at 12.5kHz | This checking should be performed for normal, chrome and metal tapes and for both right and left channels.<br>1. Bias current adjustment for a cassette deck should generally be performed referring to the record/playback frequency response. This is because the frequency response of a cassette deck depends more greatly upon the bias current than does that of an open reel deck. The current measuring method described below is an alternative one.<br>2. If the bias current is not properly adjusted, the record and playback characteristics become as shown below. |
| | |  | | | |
| 5 | Adjusting recording level | 1. Apply a 1kHz, approx. −10dB signal to the LINE IN terminals. Adjust the recording level controls until the signal is available at −8dBs at the LINE OUT terminals.<br>2. After checking to see if the VU indicator become to 0, record the signal applied to both left and right channels using normal tape.<br>3. Play back the recording part. Perform the recording signal adjustment with VR106 and VR206 so that the VU indicator become to 0. | VR106<br>206 | 0VU | The level difference between left and right channels for normal tape, chrome tape and metal tape should be less than 1dB (1VU). Perform the adjustment using a normal tape, level difference between recording and playback for SA/CrO2 and metal tapes should be less than 1.5dB, and that between left and right channels should also be less than 1dB. |

| Step | Item | Adjustment | Adjusting point | Standard value | Remarks |
|---|---|---|---|---|---|
| 6 | Checking record/-playback signal distortion | 1. Record a 1kHz, −8dBs signal to LINE IN terminals and perform recording with the VU meter becomes to 0.<br>2. Play back the recorded part. Check the output with a distortion meter to see if the value conforms to the standard value. | | SF/NORM tape; Less than 1.2%<br>SA/CrO2 tape; Less than 3%<br>Metal tape; Less than 2% | Be sure to perform this adjustment following bias current and recording level adjustments. |
| 7 | Checking signal to noise ratio in record-ing/play-back | 1. Record a 1kHz, 0VU signal. Stop the input by disconnecting from the terminal to perform non-signal recording.<br>2. Play back the recorded part. Measure the 0VU recording output and the non-signal recording out-put for comparison using an electronic voltmeter. Check to see if the value conforms to the standard value. | | SF/NORM, SA/CrO2 and Metal tapes; More than 42dB | Apply an output (−72dBs) to the MIC terminals with the recording level controls set to maximum so that the VU meter becomes to 0. |
| 8 | Checking erasing coefficient | 1. Apply a 1kHz signal to the LINE IN terminals. Adjust the recording level controls until the VU meter becomes to 0.<br>2. Perform recording with the signal enhanced by 20dB.<br>3. Erase a part of the recording.<br>4. Measure the output difference between the erased part and non-erased part to compare with an electronic voltmeter. | | More than 65dB | For the measuring, connect a band pass filter between the deck and the electronic voltmeter.<br>Input (1kHz 0VU + 20dB) → Tape deck (recording, erasing) → Band pass filter → Electronic voltmeter |

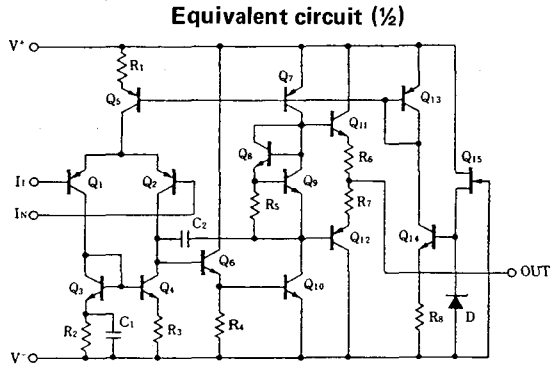
# Integrant Circuit

**UPC4557C**

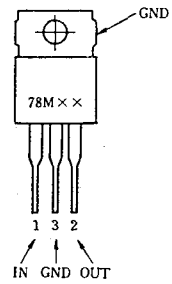
**Top view**



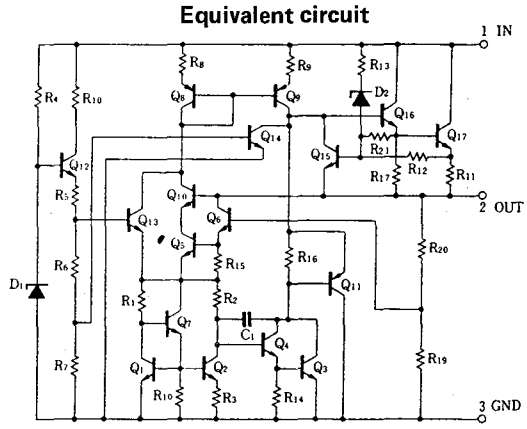

**Equivalent circuit (½)**



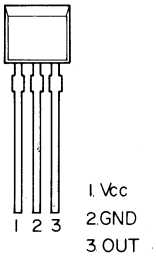

**UPC78M15H**



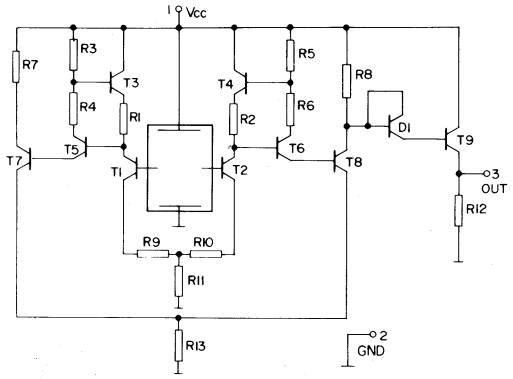

**Equivalent circuit**



## DN6835

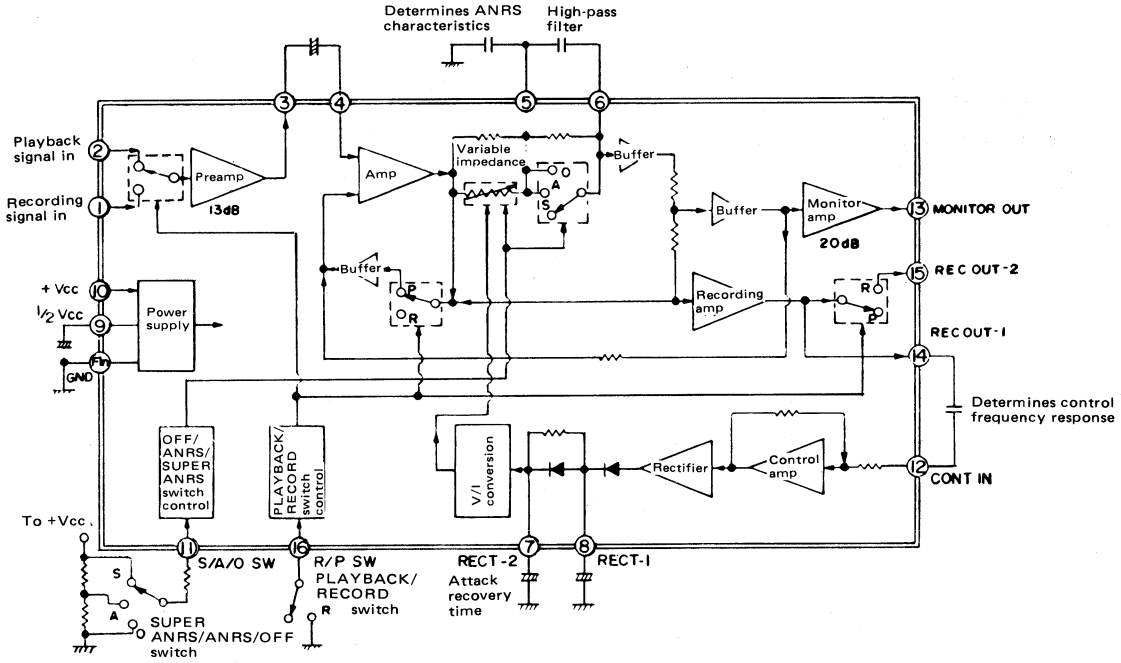



### Equivalent circuit



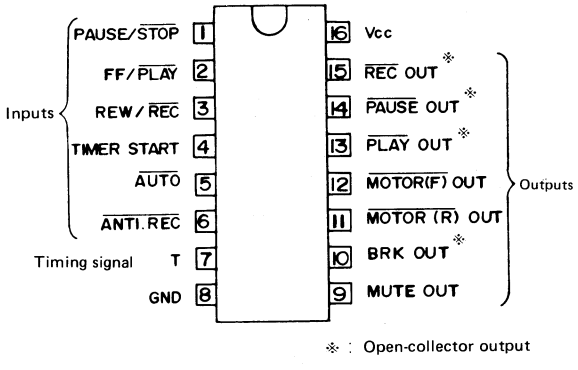

## AN7362

### Block diagram



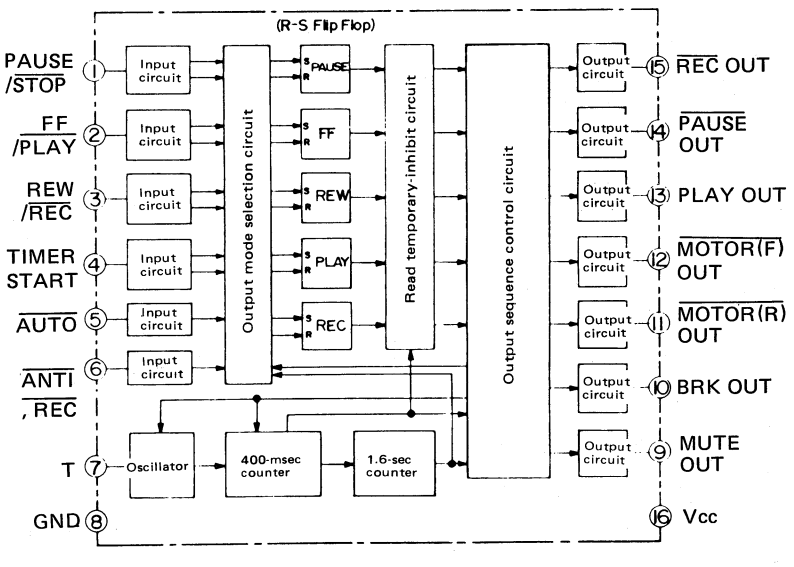

## M54886P

### Top view



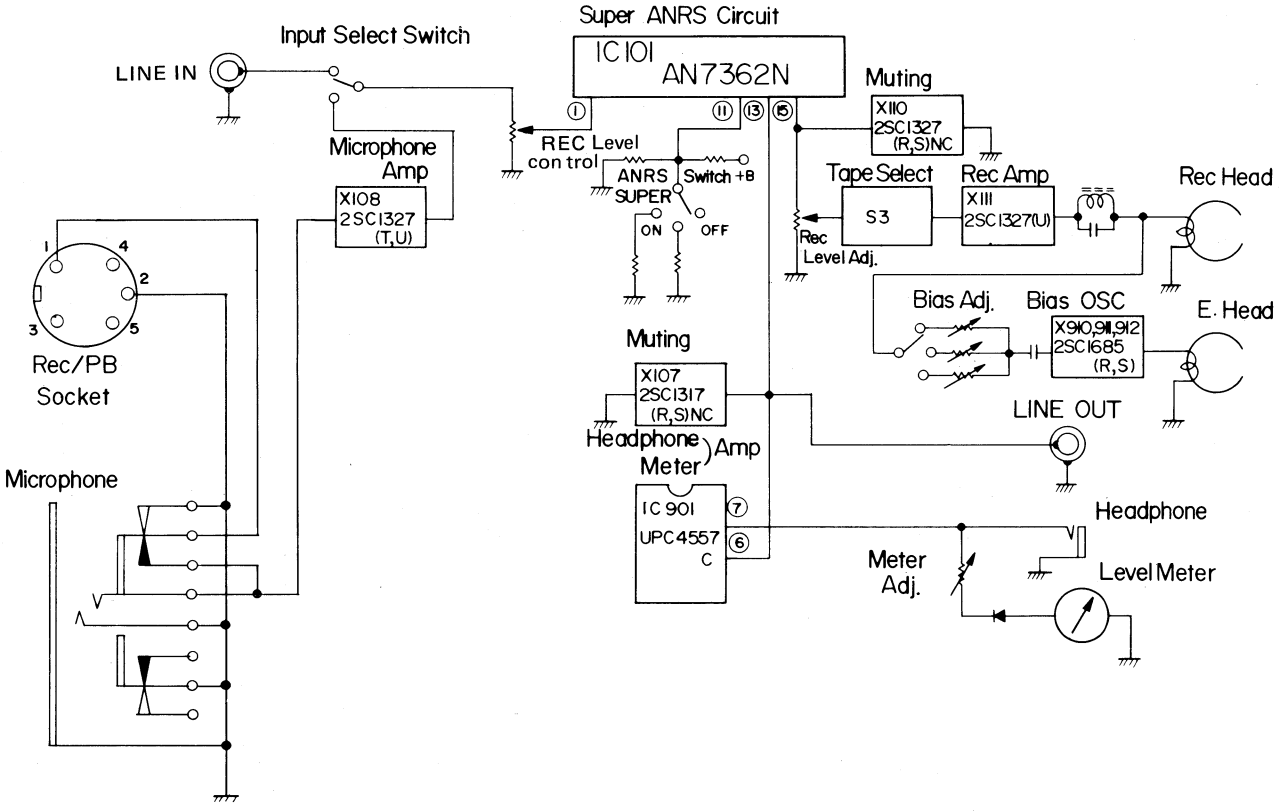

※ : Open-collector output

### Block diagram

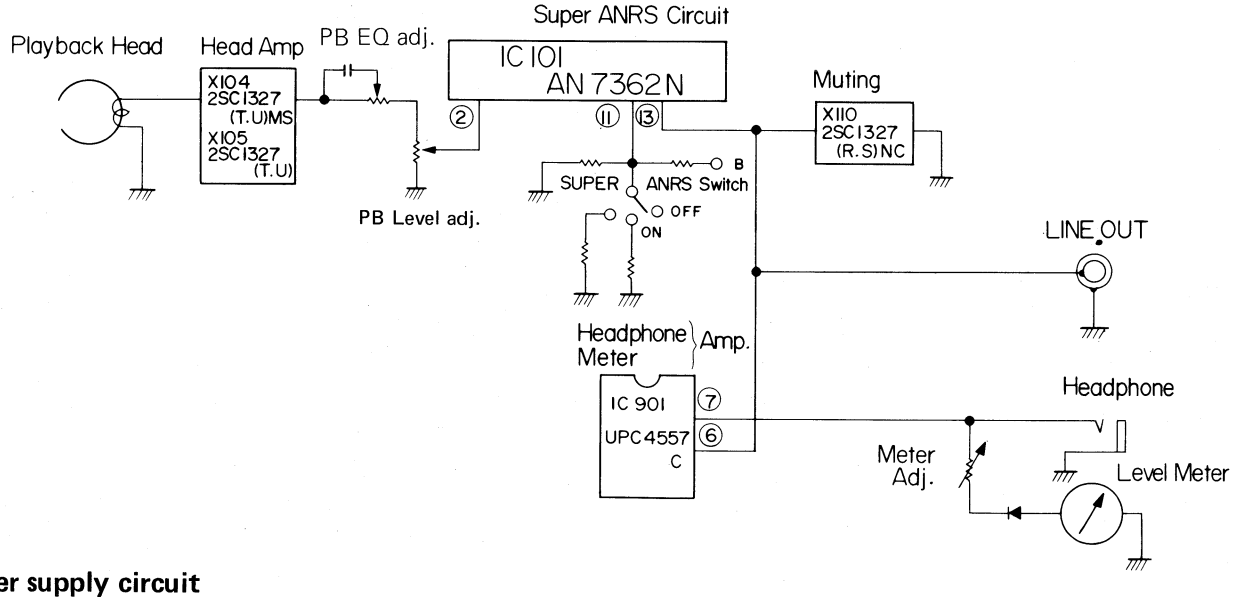


# Block Diagram

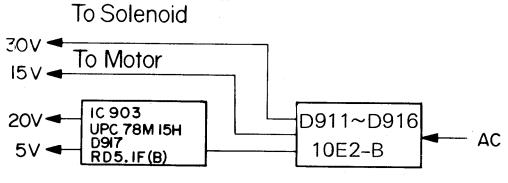
## Recording system




## Playback system

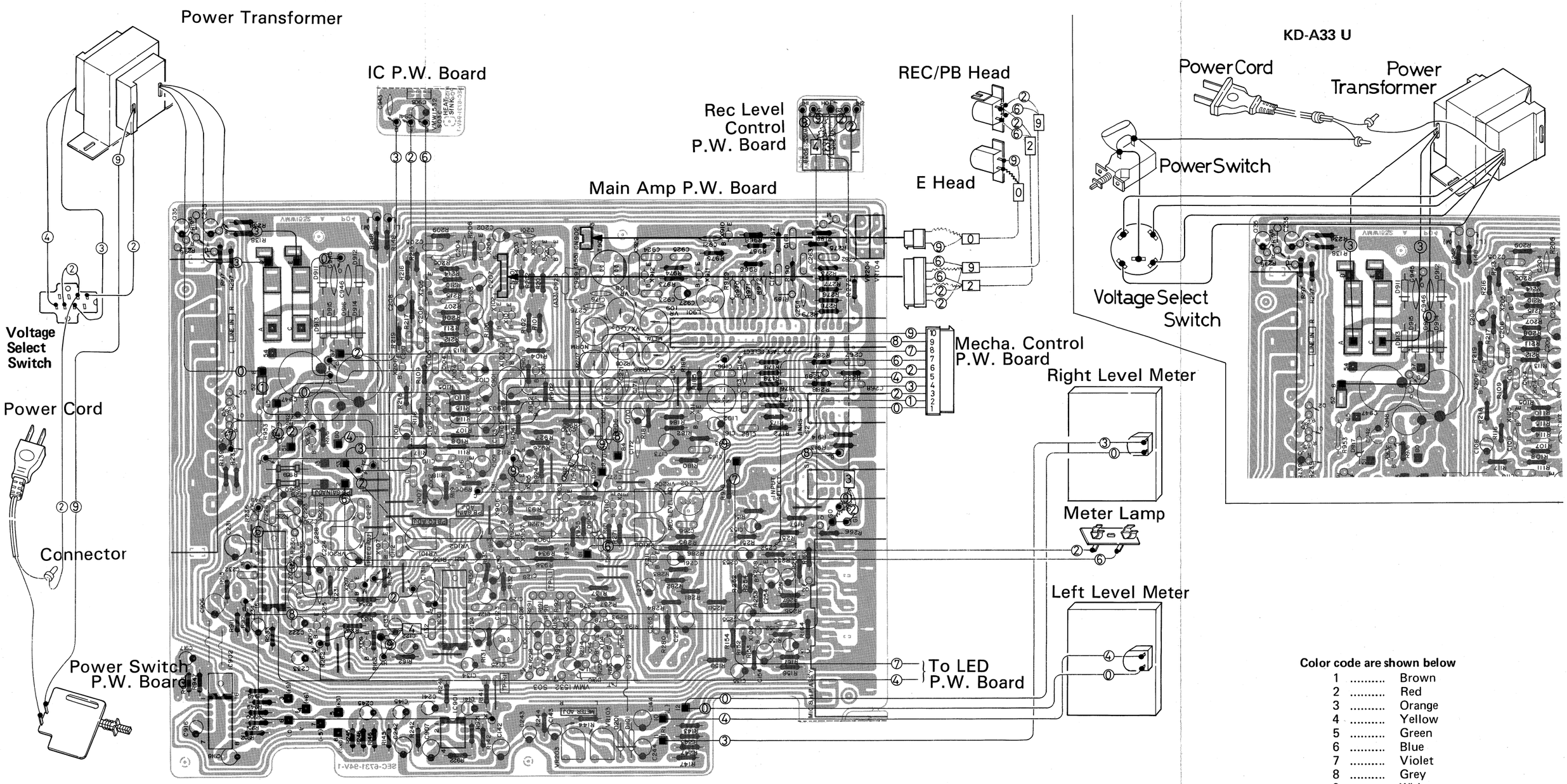



## Power supply circuit




— Continued page 19 —

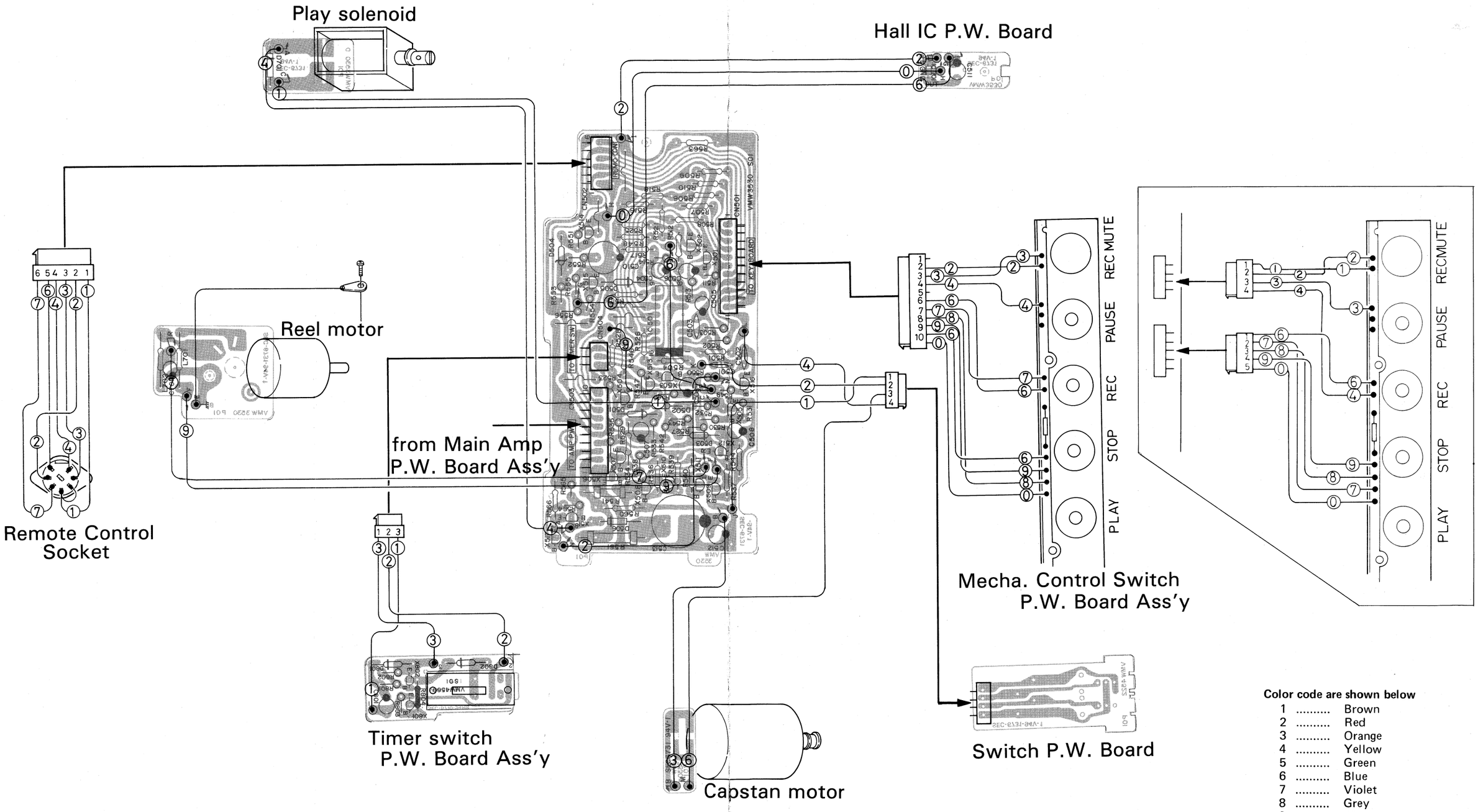
# Wiring Connections (1)




**Color code are shown below**

| | | |
|---|---|---|
| 1 | ..... | Brown |
| 2 | ..... | Red |
| 3 | ..... | Orange |
| 4 | ..... | Yellow |
| 5 | ..... | Green |
| 6 | ..... | Blue |
| 7 | ..... | Violet |
| 8 | ..... | Grey |
| 9 | ..... | White |
| 0 | ..... | Black |

# Wiring Connections (2)

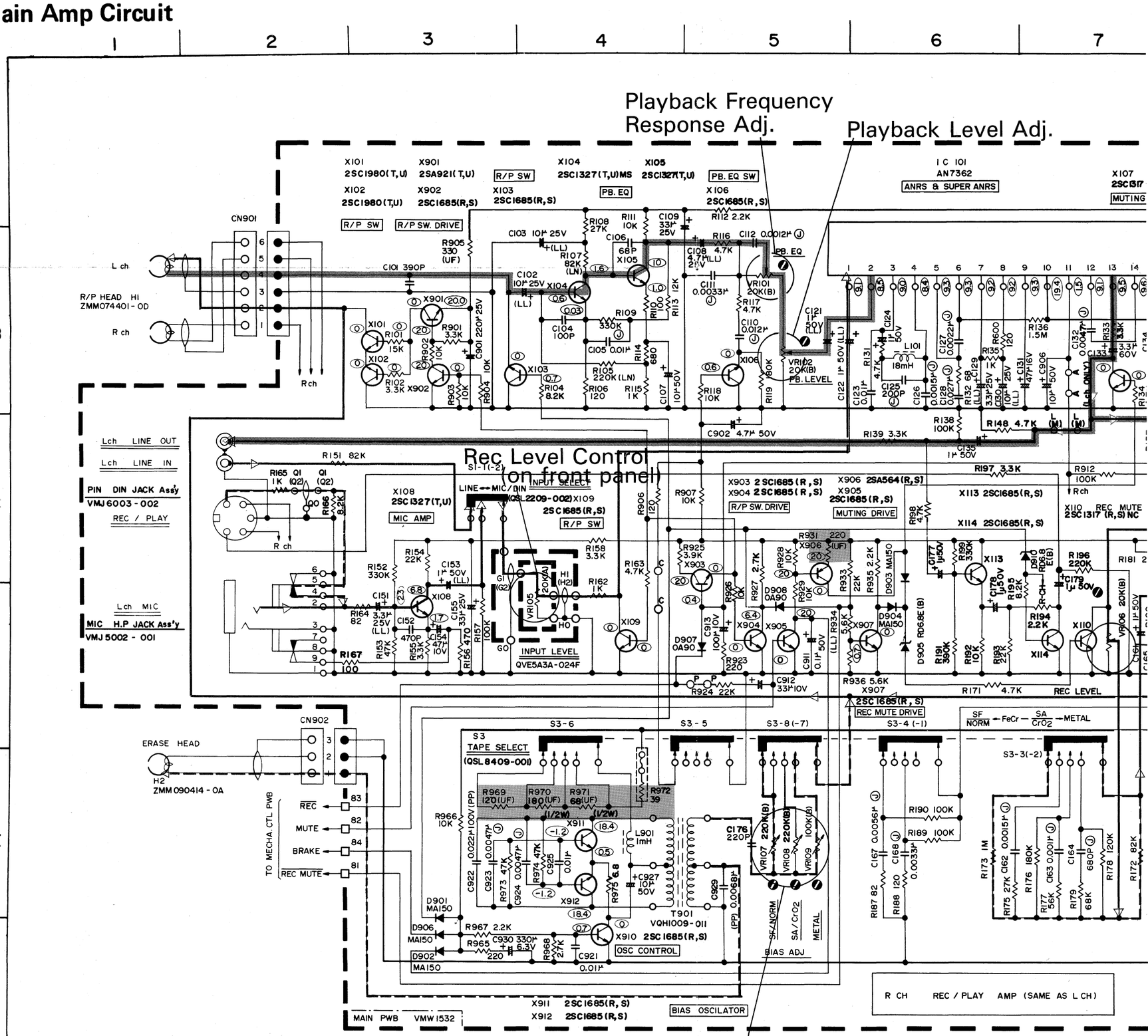



**Color code are shown below**

| | | |
|---|---|---|
| 1 | ..... | Brown |
| 2 | ..... | Red |
| 3 | ..... | Orange |
| 4 | ..... | Yellow |
| 5 | ..... | Green |
| 6 | ..... | Blue |
| 7 | ..... | Violet |
| 8 | ..... | Grey |
| 9 | ..... | White |
| 0 | ..... | Black |

# Standard Schematic Diagram of KD-A33

## Main Amp Circuit




**NOTES:**

All voltages are measured by E. Voltmeter, without input signal.
(Rec mode, tape select ... metal, ANRS ... OFF)

1. Unless otherwise specified, all resistors are 1/4W, ± 5% carbon resistors.
   And all capacitors are 50 V fixed ceramic capacitors or 50 V Mylar capacitors
2. UF — Unflamable carbon resistor
   MF — Metal film resistor
   OMF — Oxided metal film resistor
   Ta — Tantalum solid electrolytic capacitor
   LL — +20% low leak current electrolytic capacitor
   PP — Polypropylene capacitor
   PS — Polystyrene capacitor
   MM — Metallized mylar capacitor
   NP — Non-polarized electrolytic capacitor
   MP — Metalized polyester film capacitor
3. Blue line shows the signal at playback.
   Red line shows the signal at recording and +B circuits.
4. ▨ parts are safety assurance parts. When replacing those parts, make sure to use the specified one.

5 6 7 8 9 10

yback Frequency
sponse Adj.

Playback Level Adj.

PB. EQ SW

X106 2SC1685(R,S)

IC 101 AN7362 ANRS & SUPER ANRS

X107 2SC1317(R,S)NC MUTING

X913 2SC1685(R,S) POWER DELAY

IC 901 UPC4557C METER & PHONES AMP

VR103 2K(B) METER

Meter Reflection Adj.

M101 VU METER VGM0110-013T

PHONES

R/P SW. DRIVE

MUTING DRIVE

REC MUTE DRIVE

REC AMP

Recording Level Adj.

LED PWB VMW4563

TO MECHA. CTL PWB.

20V(REGU)

5V (REGU)

15V

30V

GND

R959 22 1W (OMF)

PL902 (METER) VGZ0001-003

X903 UPC78M15H POWER REGULATOR

D911 ~ D916 10E2-B

D917 RD5.1F(B)

VOLTAGE SELECT SW

POWER SW QSP1110-222

TO1 VTP66C3-022B MODEL KD-A33C/J

S3-5 S3-8(-7) S3-4(-1) S3-3(-2)

SF/NORM SA/CrO2 METAL

BIAS ADJ

BIAS OSCILATOR

R CH REC/PLAY AMP (SAME AS L CH)

Bias Adj.

TO1 VTP66U3-021B MODEL KD-A33U

TO1 VTP66C3-021B (KD-A33B/E) VTP66C3-023B (KD-A33A) MODEL KD-A33A/E WITH PLUG KD-A33B WITHOUT PLUG

capacitor
pacitor

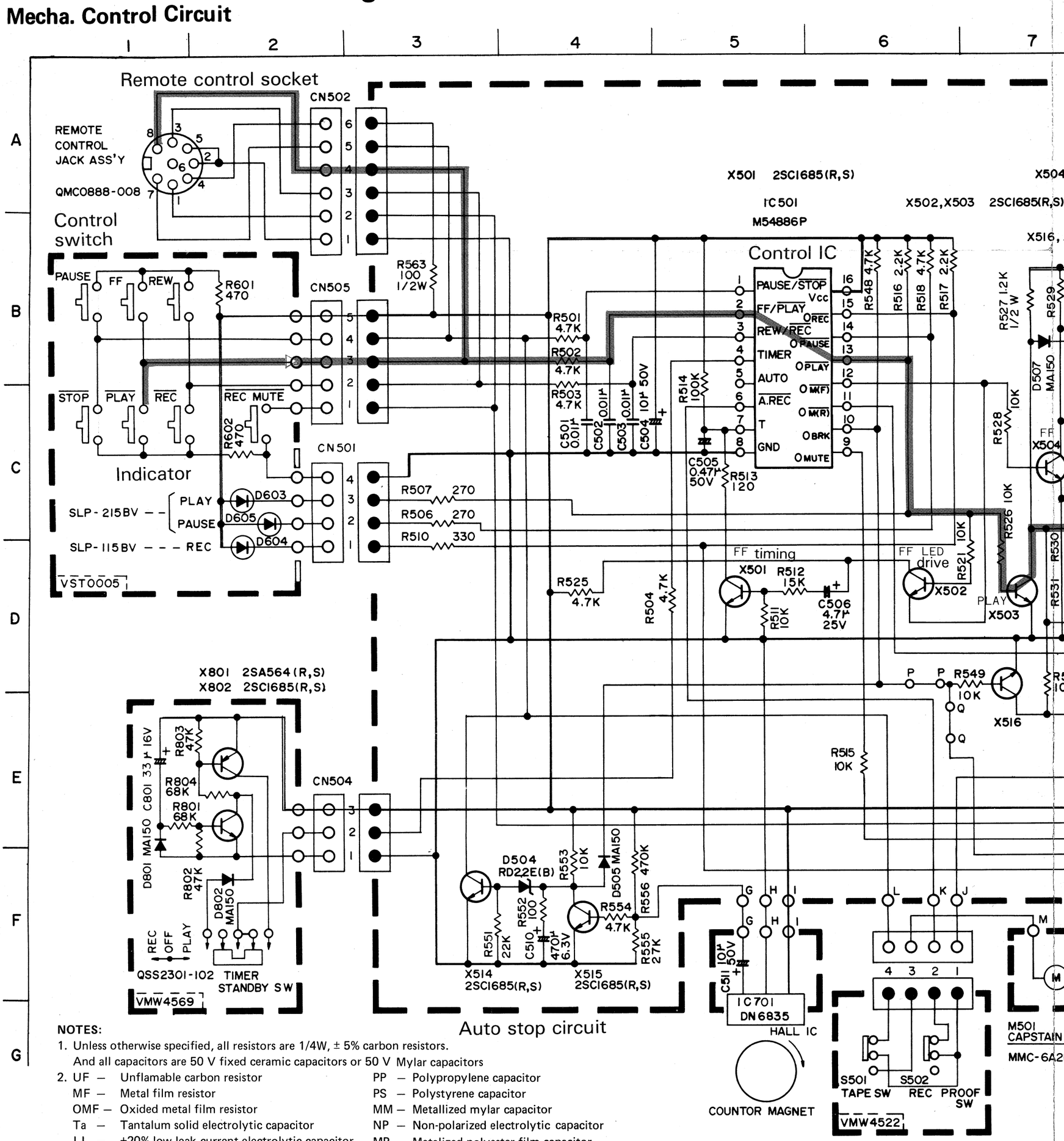
— Diode —

— Transistor —

E C B E C B

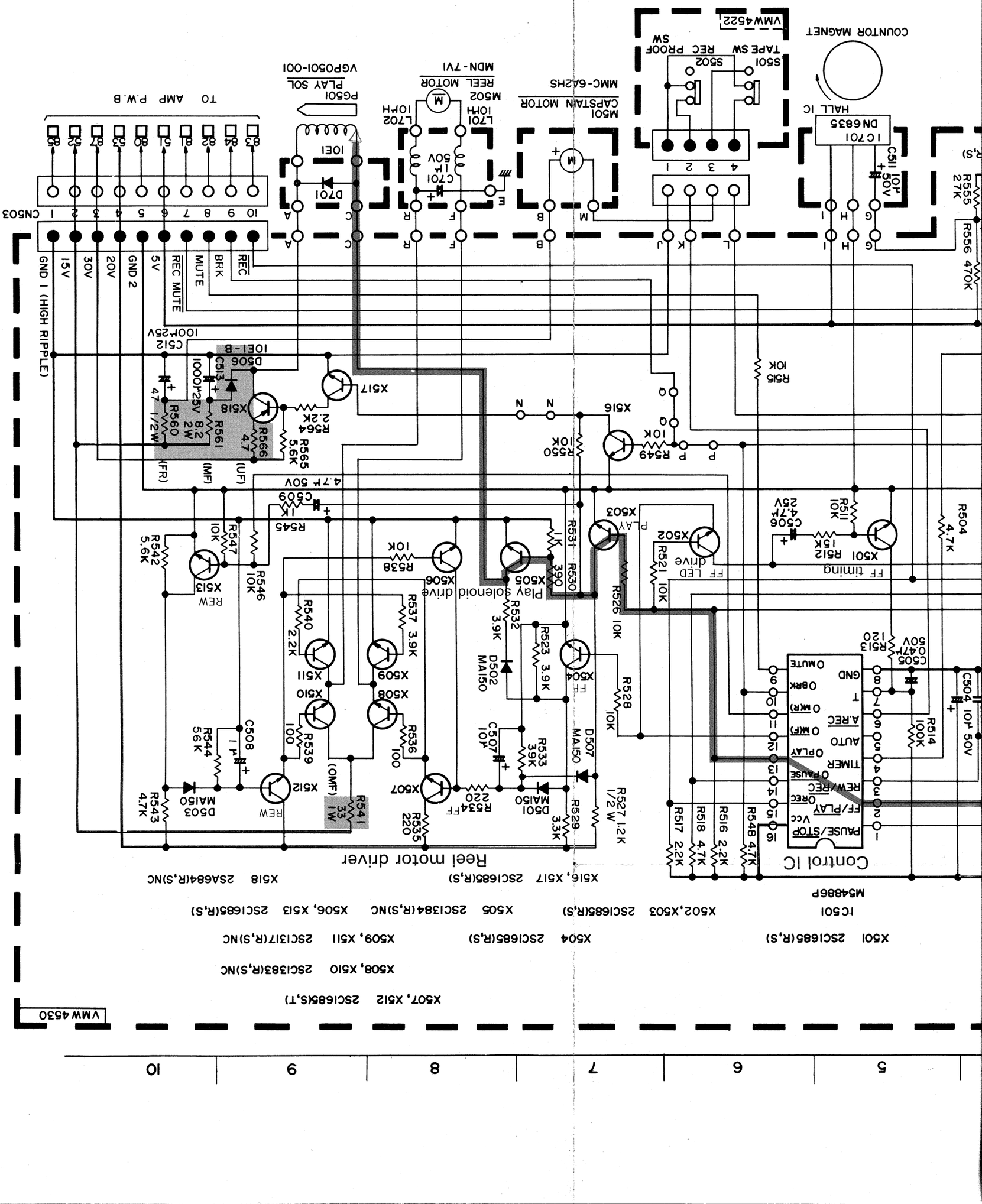
# Standard Schematic Diagram of KD-A33

## Mecha. Control Circuit




NOTES:

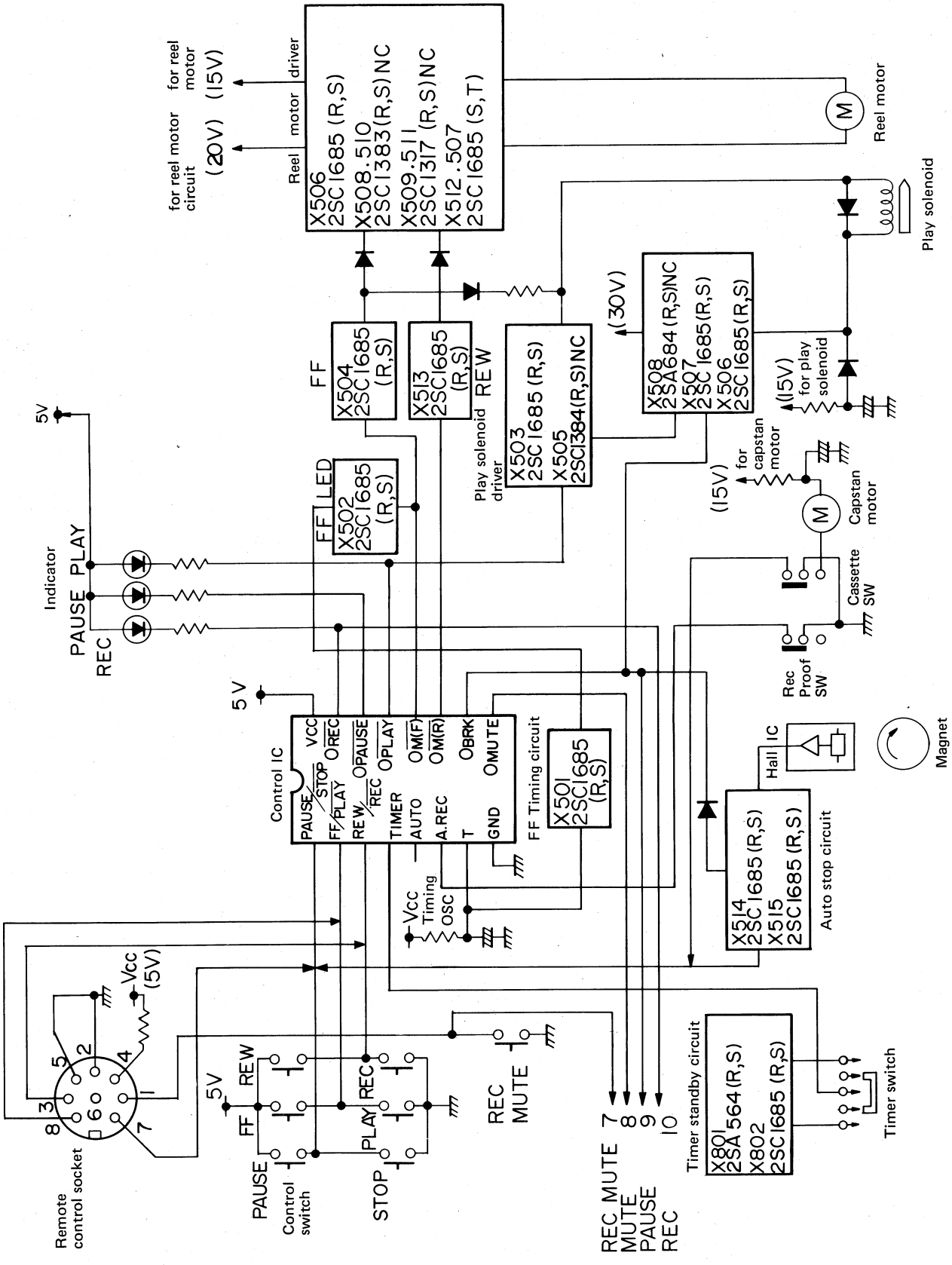
1. Unless otherwise specified, all resistors are 1/4W, ± 5% carbon resistors.
   And all capacitors are 50 V fixed ceramic capacitors or 50 V Mylar capacitors
2. UF — Unflamable carbon resistor
   MF — Metal film resistor
   OMF — Oxided metal film resistor
   Ta — Tantalum solid electrolytic capacitor
   LL — +20% low leak current electrolytic capacitor
   PP — Polypropylene capacitor
   PS — Polystyrene capacitor
   MM — Metallized mylar capacitor
   NP — Non-polarized electrolytic capacitor
   MP — Metalized polyester film capacitor
3. Blue line shows the signal at playback.
   Red line shows the signal at recording and +B circuits.
4. ▒▒ parts are safety assurance parts. When replacing those parts, make sure to use the specified one.


CN503
GND 1 (HIGH RIPPLE)
15V
30V
20V
GND 2
5V
REC MUTE
MUTE
BRK
REC
TO AMP P.W.B
PG501
PLAY SOL
VGP0501-001
D701
10EI
L702
10mH
L701
10mH
M502
REEL MOTOR
MDN-7V1
C701
1μ 50V
M501
CAPSTAIN MOTOR
MMC-6A2HS
S501
S502
TAPE SW
REC PROOF SW
VMW4522
COUNTOR MAGNET
HALL IC
IC701
DN6835
C511
10μ 50V
R555
27K
R556 470K
C512
100μ 25V
10EI-B
D506
C513
1000μ 25V
X518
R560
47
1/2W
R561
8.2
2W
R566
4.7
R565
5.6K
R564
2.2K
X517
R545
C509
4.7μ 50V
X516
R515
10K
R550
10K
R549
10K
X503
PLAY
X502
FF LED drive
R521
10K
R526 10K
R528
10K
R527 1.2K
1/2 W
R529
3.3K
R531
390
R530
X505
Play solenoid drive
R538
10K
X506
R532
3.9K
D502
MA150
R523
3.9K
X504
FF
D507
MA150
C507
10μ
R533
39K
D501
MA150
R534
220
X507
R535
220
REEL motor driver
R537
3.9K
X509
R536
100
X508
R540
2.2K
X511
R539
100
X510
(OMF)
R541
33
1W
C508
1μ
R544
56K
X512
REW
D503
MA150
R543
4.7K
R542
5.6K
R547
10K
X513
REW
R546
10K
X501
R512
15K
R511
10K
C506
4.7μ
25V
FF timing
R504
4.7K
C505
47μ
50V
R513
120
C504
10μ 50V
R514
100K
Control IC
PAUSE/STOP
FF/PLAY
REC
REW/REC
PAUSE
TIMER
PLAY
AUTO
A.REC
T
BRK
MUTE
GND
Vcc
R517 2.2K
R518 4.7K
R516 2.2K
R548 4.7K
M54886P
IC501
X502,X503 2SC1685(R,S)
X504 2SC1685(R,S)
X505 2SC1384(R,S)NC
X506, X513 2SC1685(R,S)
X509, X511 2SC1317(R,S)NC
X508, X510 2SC1383(R,S)NC
X507, X512 2SC1685(K,T)
X501 2SC1685(R,S)
X516, X517 2SC1685(R,S)
X518 2SA684(R,S)NC
VMW4530
5
6
7
8
9
10

— Continued from page 14 —

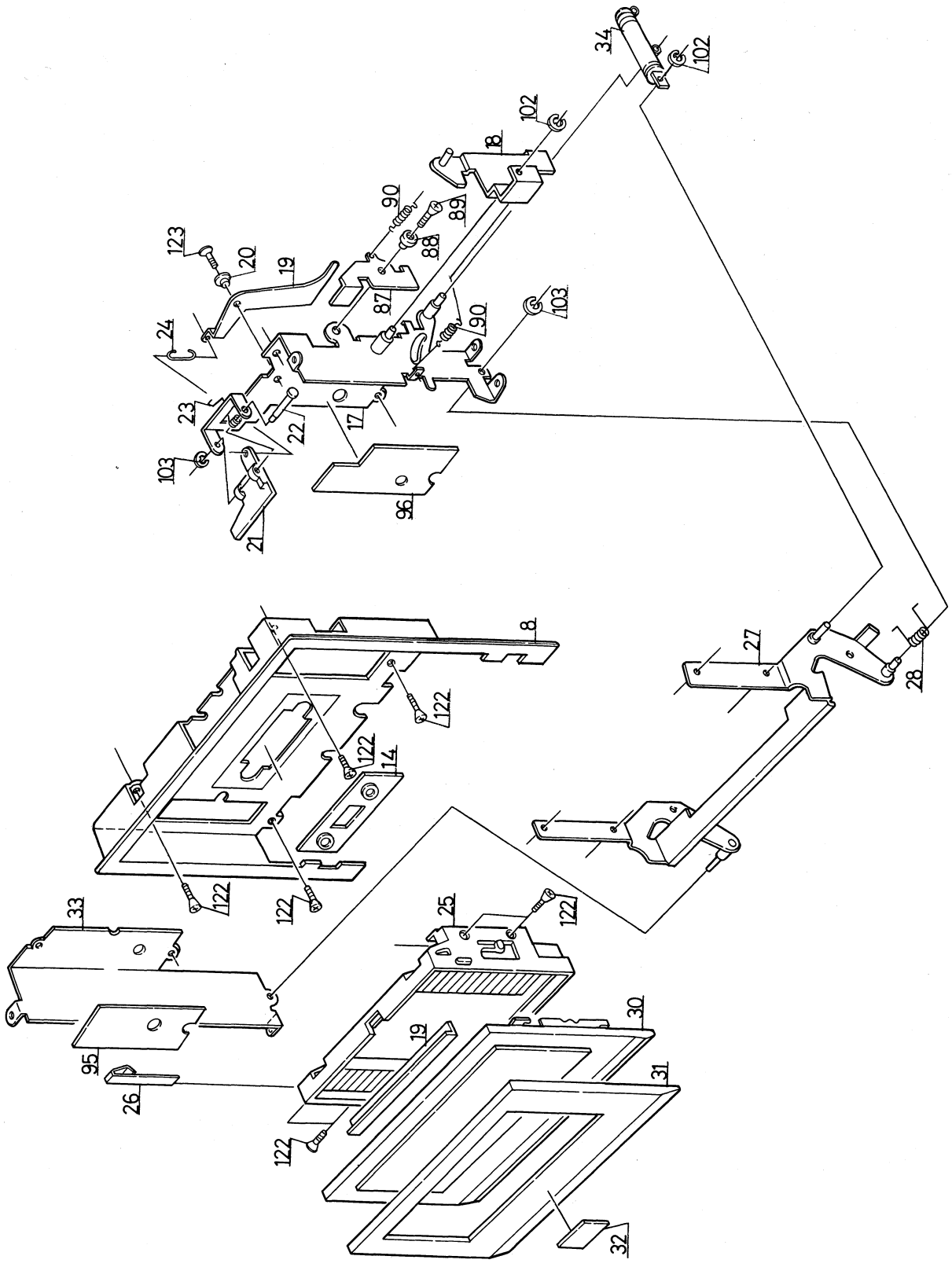
# Block Diagram

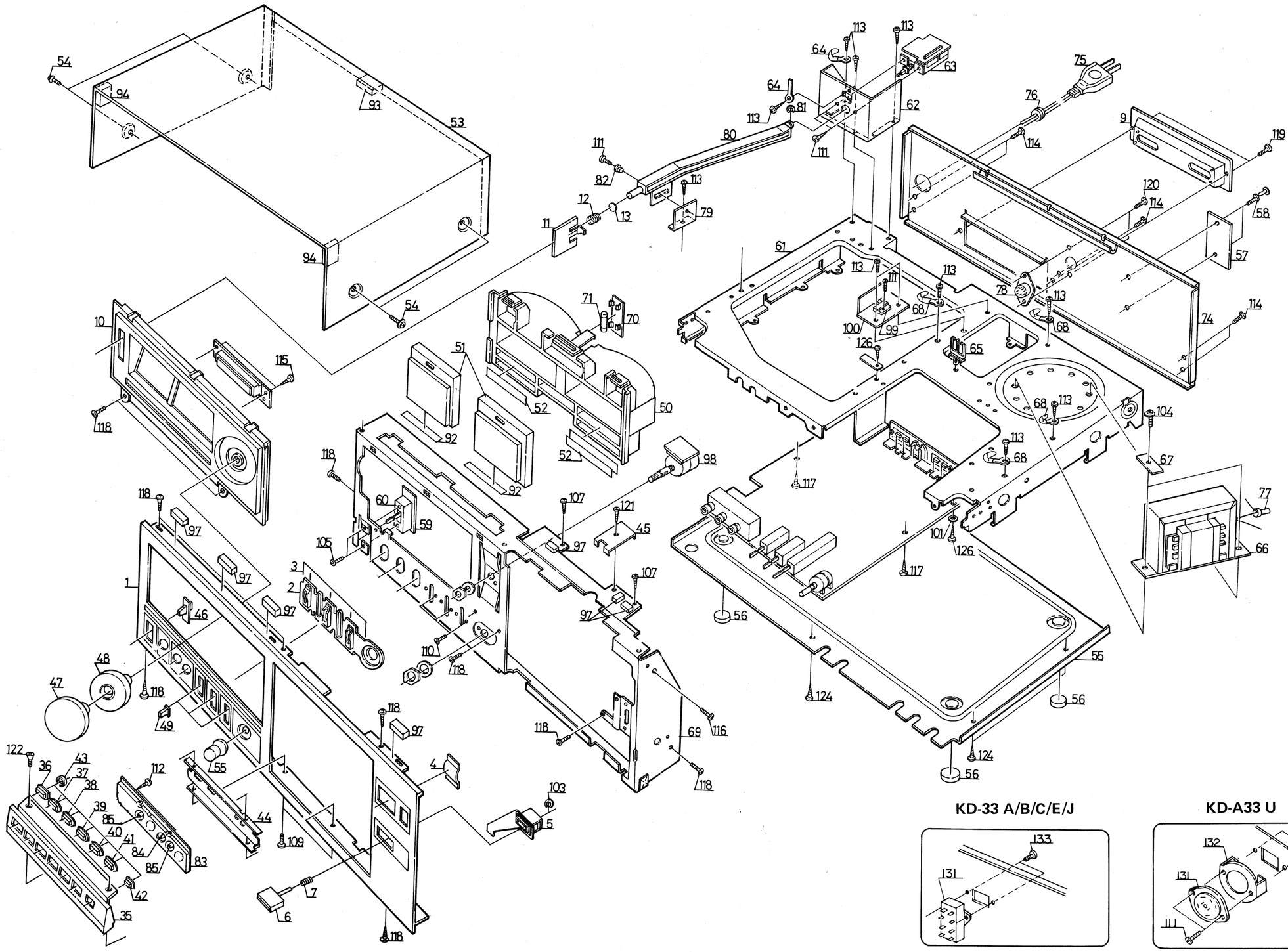
## Mecha. Control Circuit



# Enclosure Assembly and Electrical Parts

**(Except P.W. Board Parts)**

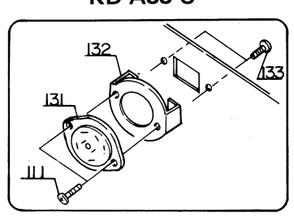




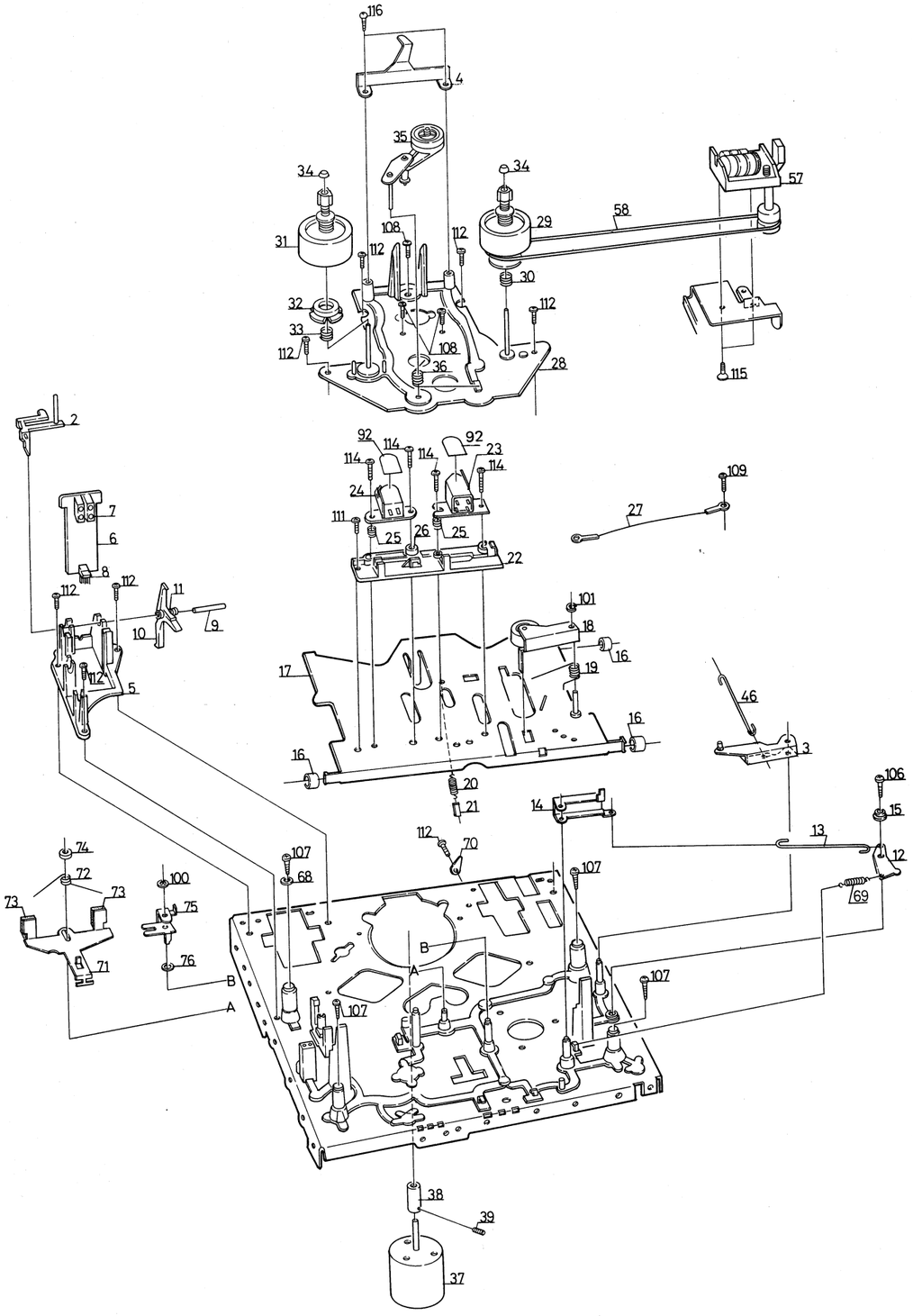
**KD-33 A/B/C/E/J**

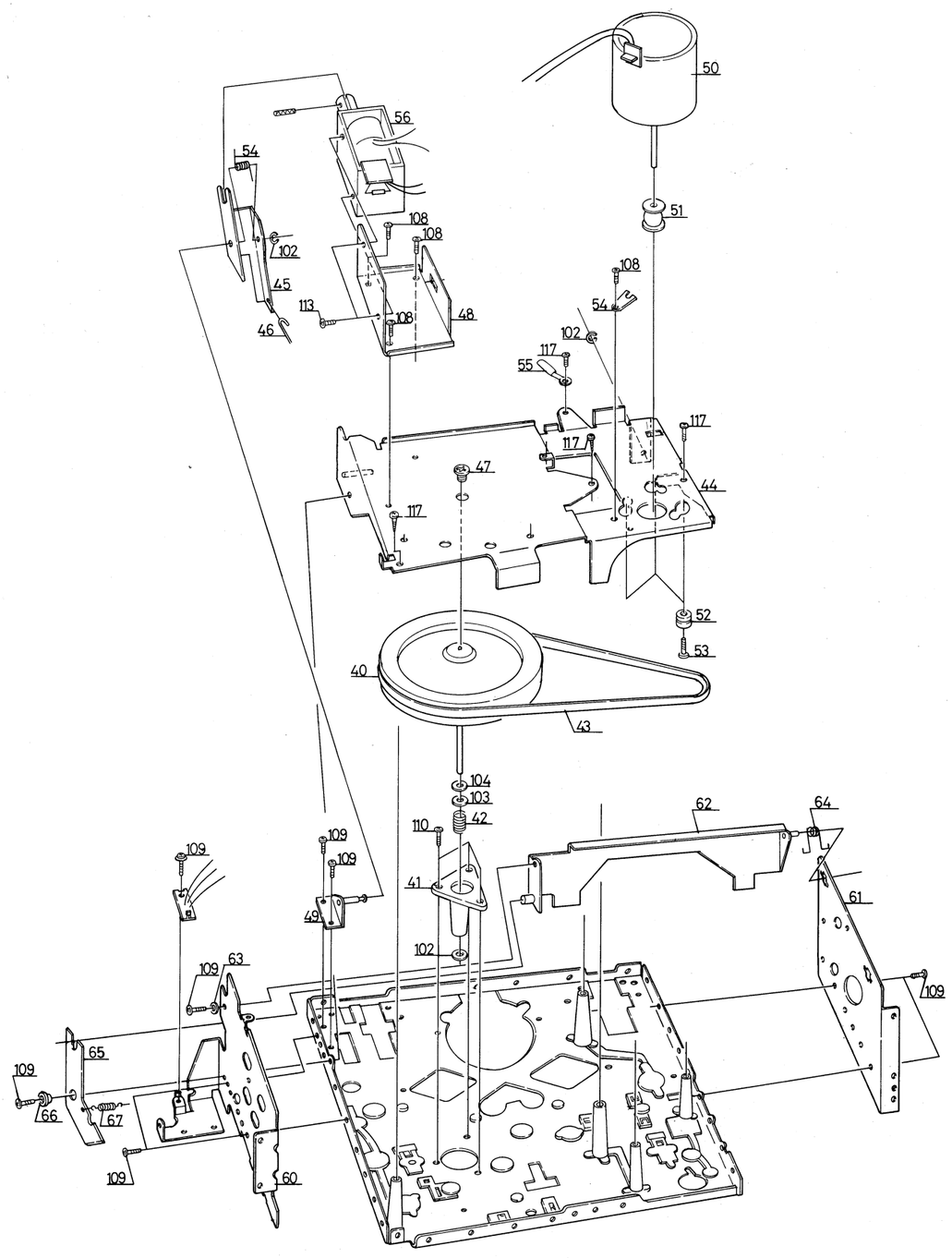


**KD-A33 U**



# Mechanical Component Parts



## Enclosure Assembly and Electrical Parts List (Except P.W. Board Parts)

⚠ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| (1~7) | *ZCKDA33Y-CBF | Front Plate Sub Ass'y | | 1 set |
| 1 | *VJC1099-002 | Front Plate | KD-A33A/C/J/U | 1 |
| | " -003 | Front Plate | KD-A33B/E | 1 |
| 2 | VJD3212-001 | Lever Escutcheon | | 1 |
| 3 | VYTA451-001 | Blind | | 1 |
| 4 | VJK4118-001 | Counter Lens | | 1 |
| 5 | VJD4361-001 | Escutcheon | for Eject Knob | 1 |
| 6 | VXP4061-00B | Push Knob Ass'y | for Eject | 1 |
| 7 | VKW3001-028 | Compression Spring | | 1 |
| 8 | VJD2151-001 | Mecha Cover | | |
| 9 | VJD3213-002 | Jack Escutcheon | | 1 |
| 10 | *VJD2146-002 | Meter Escutcheon | | 1 |
| 11 | VXP3051-002 | Push Knob | | 1 |
| 12 | VKW3001-045 | Compression Spring | | 1 |
| 13 | VYSA2R6-004 | Spacer | for Push Knob | 1 |
| 14 | VJD4385-001 | Disk Plate | | 1 |
| 17 | VKL3226-00B | Bracket (R) Ass'y | | 1 |
| 18 | VKL4756-00B | Eject Lever Ass'y | | 1 |
| 19 | VKL4669-002 | Eject Arm | | 1 |
| 20 | VKH4253-001 | Flange Collar | | 1 |
| 21 | VKS4200-002 | Lock Lever | | 1 |
| 22 | VKH4261-001 | Shaft | | 1 |
| 23 | VKW4196-001 | Torsion Spring | | 1 |
| 24 | VKW4195-001 | Wire | | 1 |
| 25 | VJT2038-002 | Cassette Holder | | 1 |
| 26 | VKY4173-002 | Cassette Spring | | 1 |
| 27 | VKL3228-00A | Holder Arm Ass'y | | 1 |
| 28 | VKW4194-004 | Holder Spring | | 1 |
| (30~32) | ZCKDA33Y-CCA | Cassette Lid Sub Ass'y | | 1 set |
| 30 | *VJT3049-001 | Cassette Lid | | 1 |
| 31 | VJT3050-001 | Lid Plate | | 1 |
| 32 | TJL344518-02 | "SA" Mark | for Lid Plate | 1 |
| 33 | VKL4667-001 | Bracket (L) | | 1 |
| 34 | VKS4002-00A | Air Dump Ass'y | | 1 |
| 35 | VJD3218-001 | Button Case | | 1 |
| 36 | VXP3046-001 | Push Button | for Rew | 1 |
| 37 | " -002 | " | for FF | 1 |
| 38 | " -003 | " | for Play | 1 |
| 39 | " -004 | " | for Stop | 1 |
| 40 | " -005 | " | for Rec | 1 |
| 41 | " -006 | " | for Pause | 1 |
| 42 | VXP4056-001 | " | for Rec Mute | 1 |
| 43 | VKS4001-001 | Button Spacer | | 7 |
| 44 | VKL4695-002 | Bracket | | 1 |
| 45 | VKL4713-001 | Bracket | | 1 |
| 46 | VXS4031-001 | Slide Knob | for Timer | 1 |
| 47 | VXL4101-00A | Knob Ass'y | for Input Level Control (Left) | 1 |
| 48 | VXL4102-00A | Knob Ass'y | for Input Level Control (Right) | 1 |
| 49 | VXQ4030-001 | Lever Knob | | 3 |
| 50 | VKS2107-001 | Lamp Hood | | 1 |
| 51 | VGM0110-013T | Level Meter | | 2 |
| 52 | VYSA1R8-045 | Spacer | | 3 |
| 53 | VKL1138-002 | Top Cover | | 1 |
| 54 | VKZ3001-002 | Special Screw | | 4 |
| 55 | VKL1167-001 | Bottom Cover | | 1 |

| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| 56 | VJF4003-001 | Foot | | 4 |
| 57 | VYN2060-002GA | Name Plate | KD-A33B | 1 |
| | " -003GA | " | KD-A33A | 1 |
| | " -004GA | " | KD-A33C | 1 |
| | " -005GA | " | KD-A33E | 1 |
| | " -006GA | " | KD-A33J | 1 |
| | " -007GA | " | KD-A33U | 1 |
| 58 | E48729-002 | Plastic Rivet | for Name Plate | 2 |
| 59 | VMW4569-001 | P.W. Board | for Timer Switch | 1 |
| 60 | QSS2301-102 | Slide Switch | for Timer Switch | 1 |
| 61 | VKL1164-00A | Amp. Chassis Ass'y | | 1 |
| 62 | VKL3224-001 | Power Bracket | for Power Switch | 1 |
| 63 | ⚠ QSP2111-011 | Push Switch | KD-A33 A/E | 1 |
| | ⚠ " -011BS | " | KD-A33B | 1 |
| | ⚠ QSP1110-222 | " | KD-A33 C/J | 1 |
| | ⚠ " 221 | " | KD-A33U | 1 |
| 64 | ⚠ VKZ4001-011 | Wire Holder | | 2 |
| 65 | QHW3059-001 | Wire Clamp | | 1 |
| 66 | ⚠ VTP66C3-023B | Power Transformer | KD-A33 A/E | 1 |
| | ⚠ VTP66C3-021BBS | " | KD-A33B | 1 |
| | ⚠ VTP66C3-022B | " | KD-A33 C/J | 1 |
| | ⚠ VTP66U3-021B | " | KD-A33U | 1 |
| 67 | F4932-002 | Spacial Washer | for Power Transformer | 2 |
| 68 | VKZ4001-011 | Wire Holder | | 4 |
| 69 | VKL1166-001 | Front Bracket | | 1 |
| 70 | QMG1121-003 | Lamp Holder | | 1 |
| 71 | VGZ0001-003 | Lamp Ass'y | | 1 set |
| | QLP4101-008 | Lamp | | 1 |
| | VJZ4006-002 | Lamp Shade | | 1 |
| 74 | VKL2122-001 | Rear Panel | KD-A33 C/J | 1 |
| | " -002 | " | KD-A33 A/B/E/U | 1 |
| 75 | ⚠ QMP2560-200 | Power Cord with Plug | KD-A33A | 1 |
| | ⚠ QMP9017-008BS | Power Cord | KD-A33B | 1 |
| | ⚠ QMP1200-200 | Power Cord with Plug | KD-A33 C/J | 1 |
| | ⚠ QMP3900-200 | " | KD-A33E | 1 |
| | ⚠ QMP7600-200 | " | KD-A33U | 1 |
| 76 | ⚠ QHS3876-162 | Strain Relief Bushing | KD-A33 A/C/E/J/U | 1 |
| | ⚠ QHS3876-162BS | " | KD-A33B | 1 |
| 77 | ⚠ TAW000504-01 | Connector | | 2 |
| 78 | QMC0888-008 | DIN Socket Ass'y | for Remote Control | 1 |
| 79 | VKL4666-001 | Guide Bracket | | 1 |
| 80 | VKS3116-001 | Remote Bar | for Power Switch | 1 |
| 81 | VYTS404-001 | Lock Plate | | 1 |
| 82 | VKH3001-032 | Flange Collar | | 1 |
| 83 | *VST0005-002 | Switch Unit Ass'y | | 1 |
| 84 | SLP-114BV | LED | D604 (Red) | 1 |
| 85 | SLP-214BV | " | D603, 605 (Green) | 2 |
| 86 | VYSA1R8-044 | Spacer | for Meter Escutcheon | 2 |
| 87 | VKL4752-001 | Lever | | 1 |
| 88 | VKH4253-001 | Collar | | 1 |
| 89 | VKZ4128-001 | Special Screw | | 1 |
| 90 | VKW3002-045 | Tension Spring | Eject Lever x 1<br>Lever x 1 | 2 |
| 91 | VKL4754-001 | Bracket | | 1 |
| 92 | VKZ4010-001 | Sheet | Level Meter | 2 |
| 93 | VYSH108-008 | Spacer | Top cover | 1 |
| 94 | VYSH104-011 | Spacer | Top cover | 1 |
| 95 | VKZ4011-001 | Sheet | Bracket (Left) | 1 |
| 96 | VKZ4012-001 | Sheet | Bracket (Right) | 1 |
| 97 | VYSH106-028 | Spacer | Front Bracket x 3<br>Front Plate x 4 | 7 |

| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| 98 | QVE5A3A-024F | Variable Resistor | VR105, 205<br>Input Level Control | 1 |
| 99 | ⚠UPC78M15H | IC | Power Supply IC | 1 |
| 100 | VKL4771-001 | Heat Sink | " | 1 |
| 101 | WBS3000 | Washer | for Earth | 1 |
| 102 | REE2500 | E ring | Air dumper Ass'y x 1<br>Eject Knob Ass'y x 1<br>Eject Lever Ass'y x 1<br>Lock Lever x 1<br>Holder Arm Ass'y x 1 | 5 |
| 104 | DPSP4012ZS | Screw | Power Transformer | 2 |
| 105 | LPSP2604Z | " | Timer Switch | 2 |
| 106 | LPSP2605Z | " | Front Plate ~ Bracket | 4 |
| 107 | LDSP2606C | " | Mecha. ~ Front Bracket | 2 |
| 108 | LPSP2606V | " | Control P.W. Board | 1 |
| 109 | LPSP2606Z | " | Bracket | 2 |
| 110 | LPSP3006VS | " | Lever Switch | 3 |
| 111 | LPSP3006ZS | " | Power Switch x 2<br>Lock Plate x 1<br>Voltage Select SW x 2<br>(KD-A33U) | 3 |
| 112 | SBSB2610Z | Tapping Screw | P.W. Board | 2 |
| 113 | SBSB3006Z | " | Switch Bracket x 3<br>Wire Holder x 4<br>Guide Bracket ~<br>Amp. Chassis x 1<br>Heat Sink x 2 | 10 |
| 114 | SDSB3006R | Screw | Rear Panel | 5 |
| 115 | SDSB3008V | " | LED P.W. Board | 2 |
| 116 | SDSB3006C | " | Mech. ~ Amp. Chassis x 4<br>Counter Bracket ~<br>Front Bracket x 1 | 5 |
| 117 | SBSB3006V | " | Main P.W. Board | 3 |
| 118 | SDSB3006Z | " | Meter Escutcheon ~<br>Front Bracket x 2<br>Front Plate ~<br>Front Bracket x 5<br>Front Bracket x 4 | 11 |
| 119 | SDSB3008R | " | Jack Escutcheon | 2 |
| 120 | SDSP2605R | " | Remote Control Socket | 2 |
| 121 | SSSP2605C | " | Bracket (VKL4713-001) | 1 |
| 122 | SSSP2605R | " | Mecha. Cover x 2<br>Cassette Holder x 4 | 6 |
| 123 | SSSP2604Z | " | Eject Arm | 1 |
| 124 | SDSB3008Z | " | Bottom Cover | 5 |
| 125 | SSSP2604R | " | Bracket (VKL4695-001) | 2 |
| 126 | SBSB3008Z | " | Chassis Earth (Main P.W.B.) | 1 |
| 130 | REE2000 | E ring | Holder Arm Ass'y | 1 |
| 131 | ⚠ QSS2325-011 | Voltage Select Switch | KD-A33 A/C/E/J | 1 |
| | ⚠ QSS2325-011BS | " | KD-A33B | 1 |
| | ⚠ QSR0084-001 | " | KD-A33U | 1 |
| 132 | VKL4275-001 | Bracket | KD-A33U, Voltage Select SW | 1 |
| 133 | SDSP3006RS | Screw | for Voltage Select SW | 2 |

## Mechanical Component Parts List

| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| 1 | *VKL1118-00F | Chassis Base Ass'y | | 1 |
| 2 | VKS4166-001 | Cassette Switch Lever | | 1 |
| 3 | *VKL4702-00A | Play Arm Ass'y | | 1 |
| 4 | VKY4174-001 | Cassette Spring | | 1 |
| 5 | VKS3109-001 | Switch Holder (L) | | 1 |
| 6 | VMW4522-001 | P.W. Board (L) | | 1 |
| 7 | QSP0029-001 | Slide Switch | | 2 |
| 8 | QMV5004-004 | Connector | | 1 |
| 9 | VKH4264-001 | Shaft | | 1 |
| 10 | VKS4136-002 | Switch Lever | | 1 |
| 11 | VKW4138-001 | Pressure Lever Spring | | 1 |
| 12 | VKL4399-002 | Eject Safety Lever | | 1 |
| 13 | *VKW4201-001 | Connecting Wire | | 1 |
| 14 | *VKL4704-001 | Eject Arm | | 1 |
| 15 | VKH3001-027 | Collar | | 1 |
| 16 | VKZ3003-001 | Rubber Tube | | 3 |
| 17 | *VKL4705-00A | Slide Base Ass'y | | 1 |
| 18 | VKP4108-00A | Pinch Roller Arm Ass'y | | 1 |
| 19 | VKW4202-001 | Pinch Roller Spring | | 1 |
| 20 | VKW3002-044 | Tension Spring | for Slide Base | 1 |
| 21 | TJN265559-02 | Silencer | | 1 |
| 22 | VKS2102-001 | Head Mount Base | | 1 |
| 23 | ZMM074401-0D | R/P Head Ass'y | | 1 |
| 24 | VGH0212-102 | E Head Ass'y | | 1 |
| 25 | VKW3001-020 | Compression Spring | for R/P, and E Heads | 2 |
| 26 | VKH4215-001 | Head Collar | | 1 |
| 27 | VMZ0008-00A | Wire Ass'y | | 1 |
| 28 | VKL3155-00A | Reel Disk Bracket Ass'y | | 1 |
| 29 | *VKR4133-00B | Take-up Reel Ass'y | | 1 |
| 30 | VKW3001-046 | Compression Spring | | 1 |
| 31 | VKR4118-00A | Supply Reel Ass'y | | 1 |
| 32 | VKS4130-001 | Back Tension Base | | 1 |
| 33 | VKW3001-026 | Compression Spring | | 1 |
| 34 | VKS4131-001 | Reel Stopper | | 2 |
| 35 | VKS4151-00B | Idler Ass'y Unit | | 1 |
| 36 | VKW4134-001 | Idler Spring | | 1 |
| 37 | MDN-7V1 | Reel Motor | | 1 |
| 38 | VKR4121-001 | Motor Pulley | | 1 |
| 39 | YRS2603B | Screw | for Motor Pulley | 1 |
| 40 | VKF3107-00B | Flywheel Ass'y | | 1 |
| 41 | VKF3103-00B | Capstan Metal | | 1 |
| 42 | T30301-137 | Spring | | 1 |
| 43 | VKB3001-007 | Capstan Belt | | 1 |
| 44 | VKL3231-002 | Hold Base | | 1 |
| 45 | *VKL4706-001 | Play Solenoid Lever | | 1 |
| 46 | *VKW4200-001 | Connecting Wire | | 1 |
| 47 | TEP357456-01 | Thrust Screw | | 1 |
| 48 | *VKL4709-001 | Play Solenoid Bracket | | 1 |
| 49 | *VKL4707-00A | Holder Bracket Ass'y | | 1 |
| 50 | MMC-6A2HS | D.C. Motor | for Capstan | 1 |
| 51 | VKS4139-002 | Motor Pulley | | 1 |
| 52 | TER357465-03 | Cusion Rubber | | 3 |
| 53 | VKZ4109-003 | Motor Screw | | 3 |
| 54 | TFB345469-01 | Rubber Stopper | | 1 |
| 55 | VKZ4001-011 | Wire Holder | | 1 |
| 56 | *VGP0501-001 | D.C. Solenoid Ass'y | | 1 |
| 57 | *VKC5134-002S | Counter Ass'y | VKC5134-0035=Counter Knob | 1 |
| 58 | VKB3000-012 | Counter Belt | | 1 |

| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| 59 | VKZ4001-010 | Wire Holder | | 1 |
| 60 | VKL3230-001 | Side Bracket (R) | | 1 |
| 61 | VKL4682-001 | Side Bracket (L) | | 1 |
| 62 | VKL4403-00B | Shift Arm Ass'y | | 1 |
| 63 | VKH3001-033 | Flange Coller | | 1 |
| 64 | VKW4156-001 | Shift Arm Spring | | 1 |
| 65 | VKL4701-001 | Shift Lever | | 1 |
| 66 | VKH3001-027 | Flange Coller | | 1 |
| 67 | *VKW3002-044 | Tension Spring | | 1 |
| 68 | WNB2600N | Washer | | 1 |
| 69 | VKW3002-045 | Spring | | 1 |
| 70 | 51739-2 | Lug | | 1 |
| 92 | THC037417-02 | Head Plate | R/P Head, E Head | 2 |
| 100 | REE2500 | E ring | | 1 |
| 101 | REE2000 | E ring | for Pinch Roller Arm Ass'y | 1 |
| 102 | Q03093-522 | Washer | for Flywheel | 1 |
| 103 | " -621 | " | " | 1 |
| 104 | " -827 | " | " | 1 |
| 105 | DPSP2605Z | Screw | for Control P.W.B. | 2 |
| 106 | GPSA2608Z | Tapping Screw | for Eject Safety Lever | 1 |
| 107 | GPSA2612Z | " | for Slide Base Ass'y | 4 |
| 108 | LPSP2604Z | Screw | for Reel Motor x 3<br>Play Solenoid Bracket x 3<br>Rubber Stopper x 1<br>Holder Bracket Ass'y x 2 | 9 |
| 109 | LPSP2605Z | " | for Hold Base x 2<br>Slide Bracket x 4<br>Shift Arm Ass'y x 1<br>Shift Lever x 1<br>Lug x 1 | 9 |
| 110 | LPSP2606Z | " | for Capstan Metal | 3 |
| 111 | SPSP2006Z | " | for Head Mount Base | 1 |
| 112 | SPSP2605Z | " | for Ass'y Unit x 4<br>Switch Holder x 3<br>Wire Holder x 1 | 8 |
| 113 | SPSP3303ZS | " | for Solenoid | 2 |
| 114 | SPSX2010N | " | for R/P and E Head | 4 |
| 115 | SSSP3006ZS | " | for Counter Ass'y | 2 |
| 116 | SBSB2006Z | Tapping Screw | for Cassette Spring | 2 |
| 117 | SBSB2610Z | " | for Hold Base | 4 |

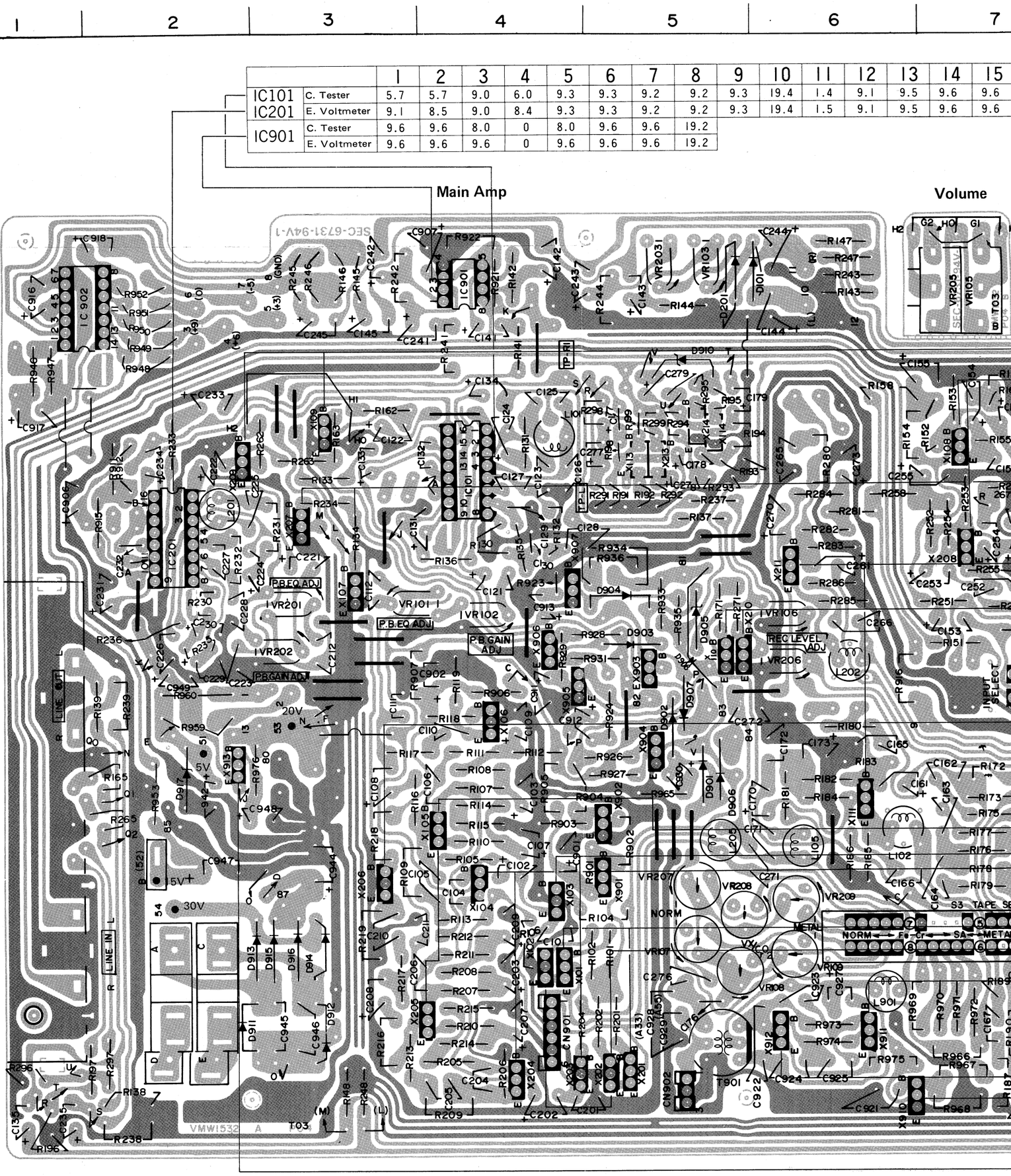
## Main P.W. Board Parts List

⚠ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| | *VMW1532-004 | P.W. Board | No supply as parts assembly | 1 |
| R101,201 | QRD141J-153SY | C. Resistor | 15kΩ ¼W | 2 |
| R102,202,133,233 139,239,143,143 155,255,158,258 197,297 | " -332SY | " | 3.3kΩ " | 14 |
| R116,216,117,217 131,231,134,234 148,248,163,263 171,271,198,298 | " -472SY | " | 4.7kΩ " | 16 |
| R105,205 | " -224SL | C. Resistor (Low Noise) | 220kΩ " | 2 |
| R106,206,188,288 906 | " -121SY | C. Resistor | 120Ω " | 5 |
| R107,207,151,251 172,272 | " -823SL | C. Resistor (Low Noise) | 82kΩ " | 6 |
| R108,208,175,275 | " -273SY | C. Resistor | 27kΩ " | 4 |
| R109,209,152,252 199,299 | " -334SY | " | 330kΩ " | 6 |
| R110,210,167,267 | " -101SY | " | 330kΩ " | 4 |
| R111,211,228,218 137,237,902~904 907,926,928,929 966 | " -103SY | " | 10kΩ " | 14 |
| R112,212,181,281 935,967,194,294 | " 222SY | " | 2.2kΩ " | 8 |
| R113,213 | QRD147J-123S | " | 12kΩ " | 2 |
| R114,214,144,244 | QRD141J-681SY | " | 680Ω " | 4 |
| R115,215,162,262 | " -102SY | " | 1kΩ " | 4 |
| R119,219,176,276 | " -184SY | " | 180kΩ " | 4 |
| R130,230 | QRD143J-121S | " | 120Ω " | 2 |
| R132,232 | QRD141J-680SY | " | 68Ω " | 2 |
| R135 | QRD147J-102S | " | 1kΩ " | 1 |
| R235,165,265 | QRD143J-102S | " | 1kΩ " | 3 |
| R136 | QRD147J-155S | " | 1.5MΩ " | 1 |
| R236 | QRD143J-155S | " | 1.5MΩ " | 1 |
| R138,238,157,257 183,283,190,290 912 | QRD141J-104SY | " | 160kΩ " | 9 |
| R141,241,153,253 | QRD141J-473SY | " | 47kΩ " | 4 |
| R142,242 | QRD147J-154S | " | 150kΩ " | 2 |
| R147,247 | " -151S | " | 150Ω " | 2 |
| R104,204,166,266 | QRD141J-822SY | " | 8.2kΩ " | 4 |
| R154,254,180,280 184,284,924,933 | " -223SY | " | 22kΩ " | 8 |
| R156,256 | QRD147J-471S | " | 470Ω " | 2 |
| R164,264,187,287 | " -820SY | " | 82Ω " | 4 |
| R173,273 | " -105S | " | 1MΩ ¼W | 2 |
| R177,277 | QRD141J-563SY | " | 56kΩ " | 2 |
| R178,278 | " -124SY | " | 120kΩ " | 2 |
| R179,279,921,922 | " -683SY | " | 68kΩ " | 4 |
| R193,293 | " -223SY | " | 22kΩ " | 2 |
| R182,282 | QRD147-125S | " | 1.2MΩ " | 2 |
| R185,285 | QRD141J-152SY | " | 1.5kΩ " | 2 |
| R186,286 | QRD147J-221S | " | 220Ω " | 2 |
| R189,289 | QRD143J-104S | " | 100kΩ " | 2 |
| R191,291 | " -394S | " | 390kΩ " | 2 |
| R196,296 | " -224S | " | 220kΩ " | 2 |
| R901 | QRD141J-332SY | " | 3.3kΩ " | 1 |
| R905 | ⚠ QRD149J-331S | Unflammable Resistor | 330Ω " | 1 |

# Main P.W. Board Parts

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC101<br>IC201 | C. Tester | 5.7 | 5.7 | 9.0 | 6.0 | 9.3 | 9.3 | 9.2 | 9.2 | 9.3 | 19.4 | 1.4 | 9.1 | 9.5 | 9.6 | 9.6 |
| | E. Voltmeter | 9.1 | 8.5 | 9.0 | 8.4 | 9.3 | 9.3 | 9.2 | 9.2 | 9.3 | 19.4 | 1.5 | 9.1 | 9.5 | 9.6 | 9.6 |
| IC901 | C. Tester | 9.6 | 9.6 | 8.0 | 0 | 8.0 | 9.6 | 9.6 | 19.2 | | | | | | | |
| | E. Voltmeter | 9.6 | 9.6 | 9.6 | 0 | 9.6 | 9.6 | 9.6 | 19.2 | | | | | | | |

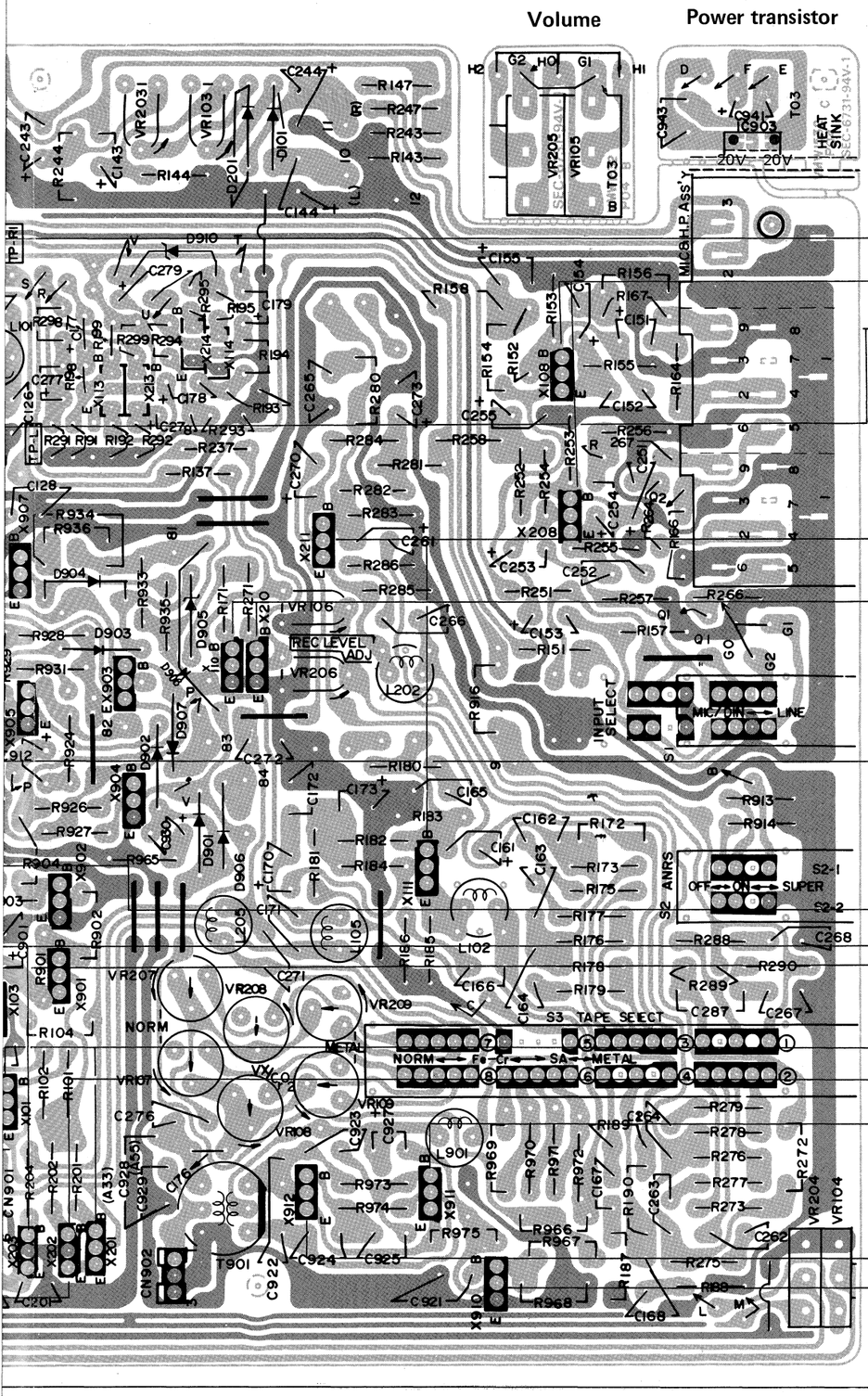



| | X901 | | | X902 | | | X903 | | | X904 | | | X905 | | | X906 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | E | C | B | E | C | B | E | C | B | E | C | B | E | C | B | E | C | B |
| C. Tester | 20.0 | 0 | 19.8 | 0 | 19.8 | 0 | 0.03 | 19.9 | 0.45 | 0 | 6.4 | 0.03 | 0 | 20 | | 20 | 0 | |
| E. Voltmeter | 20.0 | 0 | 19.8 | 0 | 19.8 | 0 | 0.03 | 19.9 | 0.45 | 0 | 6.4 | 0.03 | 0 | 20 | | 20 | 0 | |

| 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|

| 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .3 | 9.3 | 9.2 | 9.2 | 9.3 | 19.4 | 1.4 | 9.1 | 9.5 | 9.6 | 9.6 | 0.4 |
| .3 | 9.3 | 9.2 | 9.2 | 9.3 | 19.4 | 1.5 | 9.1 | 9.5 | 9.6 | 9.6 | 0.5 |
| .0 | 9.6 | 9.6 | 19.2 | | | | | | | | |
| .6 | 9.6 | 9.6 | 19.2 | | | | | | | | |

C. Tester = Circuit Tester
E. Voltmeter = Electrinic Voltmeter

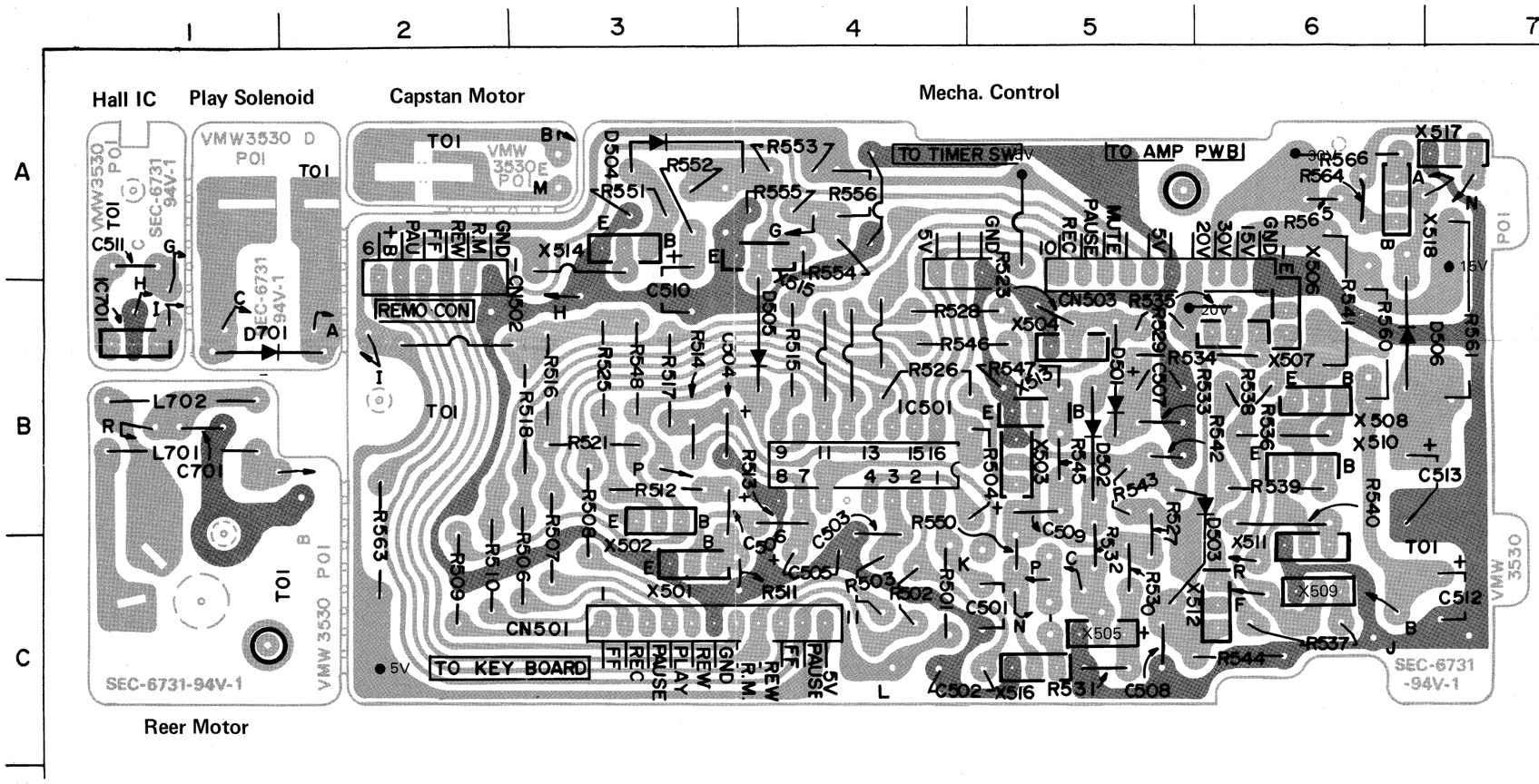



| | C. Tester | | | E. Voltmeter | | |
|---|---|---|---|---|---|---|
| | E | C | B | E | C | B |
| X109 209 | 0 | 0 | 0 | 0 | 0 | 0 |
| X108 208 | 1.7 | 6.8 | 1.6 | 1.7 | 6.8 | 2.3 |
| X107 207 | 0 | 0 | 0 | 0 | 0 | 0 |
| X111 211 | 1.7 | 6.4 | 0.2 | 1.7 | 6.4 | 2.3 |
| X110 210 | 0 | 0 | 0 | 0 | 0 | 0 |
| X106 206 | 0 | 0 | 0.6 | 0 | 0 | 0.6 |
| X105 205 | 1.0 | 12 | 1.6 | 1.0 | 12 | 16.3 |
| X103 203 | 0 | 0 | 0.7 | 0 | 0 | 0.7 |
| X104 204 | 0.03 | 1.63 | 0.3 | 0.03 | 1.63 | 0.6 |
| X101 201 | 0 | 0 | 0 | 0 | 0 | 0 |
| X102 202 | 0 | 0 | 0 | 0 | 0 | 0 |

| | C. Tester | | | E. Voltmeter | | |
|---|---|---|---|---|---|---|
| | E | C | B | E | C | B |
| X911 | 0.5 | 18.4 | −1.2 | 0.5 | 18.4 | −1.2 |
| X912 | 0.5 | 18.4 | −1.2 | 0.5 | 18.4 | −1.2 |
| X910 | 0 | 0 | 0.7 | 0 | 0 | 0.7 |
| X913 | 19.2 | 20.0 | 19.8 | 19.2 | 20.0 | 19.8 |

| 903 | | X904 | | | X905 | | | X906 | | | X907 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | B | E | C | B | E | C | B | E | C | B | E | C | B |
| 19.9 | 0.45 | 0 | 6.4 | 0.03 | 0 | 20 | | 20 | 0 | | 0 | 0 | 0.7 |
| 19.9 | 0.45 | 0 | 6.4 | 0.03 | 0 | 20 | | 20 | 0 | | 0 | 0 | 0.7 |

# Mecha. Control P.W. Board Parts




## IC501 (M54886P) pin assignment

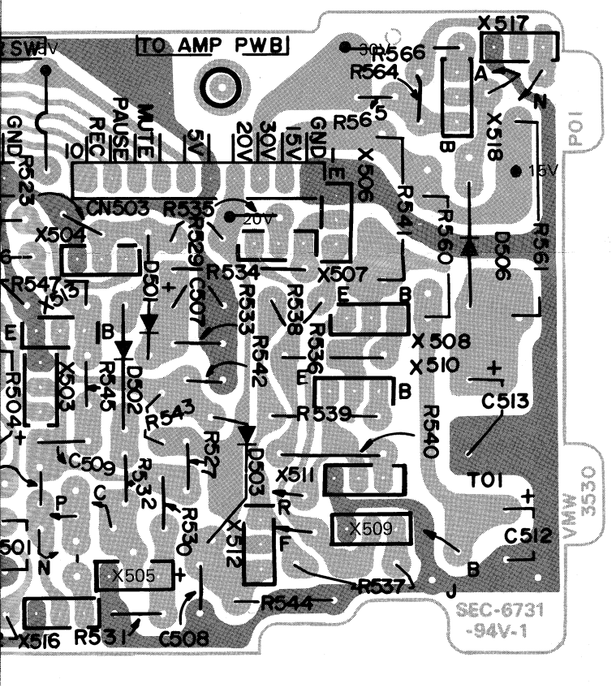
| Pin No. | Label | | Description |
|---|---|---|---|
| 1 | PAUSE/$\overline{\text{STOP}}$ | Operation inputs | Input terminal which selects PAUSE mode at "H" level and $\overline{\text{STOP}}$ mode at "L" level; also remains open when there is no input signal. |
| 2 | FF/$\overline{\text{PLAY}}$ | Operation inputs | Input terminal which selects FF mode at "H" level and $\overline{\text{PLAY}}$ mode at "L" level. |
| 3 | REW/$\overline{\text{REC}}$ | Operation inputs | Input terminal which selects REW mode at "H" level and $\overline{\text{REC}}$ mode at "L" level. Input $\overline{\text{REC}}$ is effective only when PAUSE or PLAY is input simultaneously. |
| 4 | TIMER START | Operation inputs | Input terminal which selects an operating mode just after power supply starts. "H" level selects PLAY mode, "L" level REC mode, and open state STOP mode. |
| 5 | $\overline{\text{AUTO}}$ | Control inputs | Input terminal which changes operating mode; PLAY to REW, REW to PLAY, and FF to STOP, as a negative pulse ( ⌐‾‾‾⌐ ) is detected. |
| 6 | $\overline{\text{ANTI}}$ · $\overline{\text{REC}}$ | Control inputs | Input terminal which inhibits recording at "L" level. |
| 7 | T | | Connects the external capacitor (resistor) of an oscillator. |
| 8 | GND | | Ground |
| 9 | MUTE OUT | Outputs | Muting signal output |
| 10 | BRK OUT | Outputs | Reel disk brake signal output |
| 11 | $\overline{\text{MOTOR(F)}}$ OUT | Outputs | Reel motor forward drive signal output |
| 12 | $\overline{\text{MOTOR(R)}}$ OUT | Outputs | Reel motor reverse drive signal output |
| 13 | $\overline{\text{PLAY}}$ OUT | Outputs | PLAY signal output |
| 14 | $\overline{\text{PAUSE}}$ OUT | Outputs | PAUSE signal output |
| 15 | $\overline{\text{REC}}$ OUT | Outputs | Recording signal output |
| 16 | VCC | | Power |

## Output levels of IC501 (M54886P) in each operating mode

| Output / Pin / Mode | $\overline{\text{PAUSE}}$ 14 | MUTE* 9 | $\overline{\text{REC}}$ 15 | $\overline{\text{PLAY}}$ 13 | BRK* 10 | $\overline{\text{MOTOR(F)}}$ 11 | $\overline{\text{MOTOR(R)}}$ 12 |
|---|---|---|---|---|---|---|---|
| STOP | H | H | H | H | L | H | H |
| FF | H | H | H | H | H | L | H |
| REW | H | H | H | H | H | H | L |
| PLAY | H | L | H | L | H | L | H |
| REC | H | L | L | L | H | L | H |
| REC/PAUSE | L | L | L | H | L | H | H |
| PAUSE | L | H | H | H | L | H | H |

Signals marked with * are active at "H" and other at "L".

## Control




### levels of IC501 (M54886P) in each operating mode

| SE | MUTE * | REC | PLAY | BRK * | MOTOR(F) | MOTOR(R) |
|---|---|---|---|---|---|---|
| | 9 | 15 | 13 | 10 | 11 | 12 |
| | H | H | H | L | H | H |
| | H | H | H | H | L | H |
| | H | H | H | H | H | L |
| | L | H | L | H | L | H |
| | L | L | L | H | L | H |
| | L | L | H | L | H | H |
| | H | H | H | L | H | H |

* are active at "H" and other at "L".

| | | STOP | FF | REW | PLAY | REC | PLAY PAUSE | REC PAUSE | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| X501 | B | 0.7V at approx 2 sec when FF mode change to other mode, and 0V at other mode. | | | | | | | |
| | C | 0V at approx 2 sec when FF mode change to other mode, and the same as 7 pin of IC 501 at other mode. | | | | | | | |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X502 | B | 4.2 | 0.81 | 4.21 | ≒ 0 | ≒ 0 | 4.20 | 4.20 | |
| | C | 5 | 0.2 | 5 | 5 | 5 | 5 | 5 | |
| | E | 4.6 | ≒ 0 | 4.6 | ≒ 0 | ≒ 0 | 4.6 | 4.6 | |
| X503 | B | 0.7 | 0.7 | 0.7 | 0.1 | 0.1 | 0.7 | 0.7 | |
| | C | ≒ 0 | ≒ 0 | ≒ 0 | 5.4 | 5.4 | ≒ 0 | ≒ 0 | $\overline{O\ Play}$ is inversion signal |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X504 | B | 0.7 | ≒ 0 | 0.7 | ≒ 0 | ≒ 0 | 0.7 | 0.7 | |
| | C | ≒ 0 | 10.3 | ≒ 0 | 7.6 | 7.6 | ≒ 0 | ≒ 0 | $\overline{O\ M(F)}$ is inversion signal |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X505 | B | ≒ 0 | ≒ 0 | ≒ 0 | 0.81 | 0.81 | ≒ 0 | ≒ 0 | |
| | C | 15.9 | 15.5 | 15.5 | ≒ 0 | ≒ 0 | 15.9 | 15.9 | Play solenoid driver |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X506 | B | ≒ 0 | ≒ 0 | 0.7 | ≒ 0 | ≒ 0 | ≒ 0 | ≒ 0 | |
| | C | 0 | 9.8 | ≒ 0 | 6.9 | 6.9 | ≒ 0 | ≒ 0 | M(F) side driver is no operation at rewind mode. |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X507 | B | 0 | 9.8 | ≒ 0 | 6.9 | 6.9 | ≒ 0 | ≒ 0 | Same as collector of X506 |
| | C | 20 | 19 | 20 | 19.3 | 19.3 | 20 | 20 | Reel motor operate at forward direction (FF, PLAY, REC) |
| | E | ≒ 0 | 9.18 | ≒ 0 | 6.3 | 6.3 | ≒ 0 | ≒ 0 | Predriver |
| X508 | B | ≒ 0 | 9.15 | ≒ 0 | 6.26 | 6.26 | ≒ 0 | ≒ 0 | Reel motor operate at forward direction (FF, PLAY, REC) |
| | C | 16 | 13.7 | 14 | 12.4 | 12.4 | 16 | 16 | |
| | E | ≒ 0 | 8.6 | ≒ 0 | 5.7 | 5.7 | ≒ 0 | ≒ 0 | Driver is positive |
| X509 | B | ≒ 0 | ≒ 0 | 0.74 | ≒ 0 | ≒ 0 | ≒ 0 | ≒ 0 | Reel motor operate at reverse direction (Rewind) |
| | C | ≒ 0 | 8.6 | ≒ 0 | 5.7 | 5.7 | ≒ 0 | ≒ 0 | Same as emitter of X508 — Driver is negative |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X510 | B | ≒ 0 | ≒ 0 | 9.23 | ≒ 0 | ≒ 0 | ≒ 0 | ≒ 0 | Reel motor operate at reverse direction (Rewind) |
| | C | 16 | 13.7 | 14 | 12.4 | 12.4 | 16 | 16 | Same as collector of X508 — Driver is positive |
| | E | ≒ 0 | ≒ 0 | 8.58 | ≒ 0 | ≒ 0 | ≒ 0 | ≒ 0 | |
| X511 | B | ≒ 0 | 0.75 | ≒ 0 | 0.76 | 0.76 | ≒ 0 | ≒ 0 | Reel motor operate at forward direction (FF, PLAY, REC) |
| | C | ≒ 0 | ≒ 0 | 8.58 | ≒ 0 | ≒ 0 | ≒ 0 | ≒ 0 | Same as emitter of X510 — Driver is negative |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X512 | B | 0 | 0 | 9.86 | ≒ 0 | ≒ 0 | 0 | 0 | Reel motor operate at reverse direction (Rewind) |
| | C | 20 | 20 | 20 | 20 | 20 | 20 | 20 | Predriver |
| | E | 0 | ≒ 0 | 9.26 | ≒ 0 | ≒ 0 | ≒ 0 | ≒ 0 | |
| X513 | B | 0.66 | 0.66 | ≒ 0 | 0.66 | 0.66 | 0.66 | 0.66 | $\overline{OM(F)}$ signal is inversion, and reel motor operate inversion direction when changing to STOP, PAUSE mode from PLAY or REC mode. Signal is inversion buffer. |
| | C | ≒ 0 | ≒ 0 | 10.37 | ≒ 0 | ≒ 0 | ≒ 0 | ≒ 0 | |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X514 | B | 0.27 | — | — | — | — | 0.27 | 0.27 | Tape running 0.7V / 0.27V; FF, Rew 0.2V / 0V; Play, Rec 0.4V / 0V — Auto stop |
| | C | 0.6 | ≒ 0 | ≒ 0 | ≒ 0 | ≒ 0 | 0.6 | 0.6 | |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X515 | B | ≒ 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | C | 2.55 | 2.55 | 2.55 | 2.55 | 2.55 | 2.55 | 2.55 | (Turns to 0V briefly, about 1.5 second after tape travel stops.) — Auto stop |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X516 | B | 0 | 0.7 | 0.7 | 0.7 | 0.7 | 0 | 0 | Other mode ⟶ at Rec Play or Play mode. |
| | C | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Collector voltage become 0.7V for about 50m sec. |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X517 | B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Other mode ⟶ at Rec Play or Play mode. Collector voltage — 0V, and base voltage — 0.7V for about 50m sec. High ripple — Play solenoid acceleration |
| | C | 30 | 30 | 30 | 30 | 30 | 30 | 30 | |
| | E | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| X518 | B | 30 | 30 | 30 | 30 | 30 | 30 | 30 | Other mode ⟶ at Rec Play or Play. Collector — Approx. 25V, Base — Approx. 25V, Emitter — Approx. 25V (for about 50m sec) — Play solenoid acceleration |
| | C | 15 | 15 | 15 | 15 | 15 | 15 | 15 | |
| | E | 30 | 30 | 30 | 30 | 30 | 30 | 30 | |
| X801 | B | 4.4V for about 4 seconds after power supply starts and 5V thereafter. | | | | | | | |
| | C | 5V for about 4 seconds after power supply starts and 0V thereafter. | | | | | | | |
| X802 | B | 0.6V for about 4 seconds after power supply starts and 0V thereafter. | | | | | | | |
| | C | 0V for about 4 seconds after power supply starts and 5V thereafter. | | | | | | | |

| Ref. No. | Parts No. | Parts Name | Remarks | | Q'ty |
|---|---|---|---|---|---|
| R911 | QRD147J-123S | C. Resistor | 12kΩ | ¼W | 1 |
| R913,925,976 | QRD141J-392SY | " | 3.9kΩ | " | 3 |
| R914 | QRD147J-561S | " | 560Ω | " | 1 |
| R915,195,295 | " -822S | " | 8.2kΩ | " | 3 |
| R916,968 | QRD141J-272SY | " | 2.7kΩ | " | 2 |
| R923 | QRD143J-221S | " | 220Ω | " | 1 |
| R927 | QRD141J-272SY | " | 2.7kΩ | " | 1 |
| R931 | ⚠QRD149J-221S | Unflammable Resistor | 220Ω | " | 1 |
| R934,936 | QRD141J-562SY | C. Resistor | 5.6kΩ | " | 2 |
| R959 | ⚠QRG019J-220 | OMF. Resistor | 22Ω | 1W | 1 |
| R965 | QRD147J-221S | C. Resistor | 220Ω | ¼W | 1 |
| R969 | ⚠QRD149J-121S | Unflammable Resistor | 56Ω | " | 1 |
| R970 | ⚠QRD126K-181 | " | 180Ω | ½W | 1 |
| R971 | ⚠QRD149J-680S | " | 68Ω | " | 1 |
| R972 | ⚠QRH144J-390 | Fusible Resistor | 39Ω | " | 1 |
| R973,974 | QRD141J-473SY | C. Resistor | 47Ω | ¼W | 2 |
| R975 | QRD147J-6R8S | " | 6.8Ω | " | 1 |
| | V44611-003 | Formed Bus Wire | 15mm | | 2 |
| | V44611-002 | " | 10mm | | 1 |
| | V44611-005 | " | 12.5mm | | 2 |
| | QWY123-022 | Bus Wire | | | 18 |
| VR101,201 | QVP8A0B-024 | V. Resistor | PB, EQ | | 2 |
| VR102,202 | " -024 | " | PB Level | | 2 |
| VR103,203 | " -023 | " | Meter | | 2 |
| VR105,205 | QVE5A3A-024F | " | Input | | 1 |
| VR106,206 | QVP8A0B-024 | " | Rec. Level | | 2 |
| VR107,207 | QVP4A0B-224 | " | Bias SF | | 2 |
| VR108,208 | " -224 | " | Bias SA | | 2 |
| VR109,209 | " -104 | " | Bias Metal | | 2 |
| C101,201,172,272 | QCS11HJ-391 | C. Capacitor | 390pF | 50V | 4 |
| C102,202,130,230 | QEB41EM-106M | E. Capacitor (Low Leak) | 10μF | 25V | 4 |
| C103,203 | " -106N | " | 10μF | " | 2 |
| C104,204 | QCS11HK-101 | C. Capacitor | 100pF | 50V | 2 |
| C105,205,925 166,266 | QFM41HJ-103 | Mylar Capacitor | 0.01μF | " | 5 |
| C106,206 | QCS11HK-680 | C. Capacitor | 68pF | " | 2 |
| C107,207,143,243 906,927,949 | QET41HR-106N | E. Capacitor | 10μF | " | 7 |
| C108,208 | QEB41EM-475M | E. Capacitor (Low Leak) | 4.7μF | 25V | 2 |
| C109,209,144,244 155,255,173,273 907 | QET41ER-336N | E. Capacitor | 33μF | " | 9 |
| C110,210 | QFM41HJ-123 | Mylar Capacitor | 0.012μF | 50V | 2 |
| C111,211,168,268 | QFM41HJ-332 | " | 0.0033μF | " | 4 |
| C112,212 | " -122 | " | 0.0012μF | " | 2 |
| C121,221,122,222 153,253 | QEB41HM-105M | E. Capacitor (Low Leak) | 1μF | " | 6 |
| C123,223 | QFM41HK-103 | Mylar Capacitor | 0.01μF | " | 2 |
| C124,224,135,235 141,241,161,261 170,270,177,277 178,278,179,279 941 | QET41HR-105N | E. Capacitor | 1μF | " | 17 |
| C125,225 | QCS11HJ-201 | C. Capacitor | 200pF | " | 2 |
| C126,226,162,262 | QFM41HJ-152 | Mylar Capacitor | 0.0015μF | " | 4 |
| C127,227 | QFM41HK-222 | " | 0.0022μF | " | 2 |
| C128,228 | QFM41HJ-273 | " | 0.027μF | " | 2 |
| C129,229,151,251 | QEB41EM-335M | E. Capacitor (Low Leak) | 3.3μF | 25V | 4 |
| C131,231,142,242 | QET41CR-476N | E. Capacitor | 47μF | 16V | 4 |
| C132,232,923,924 | QFM41HJ-472 | Mylar Capacitor | 0.0047μF | 50V | 4 |

| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| C133,233,134,234 | QET41HR-335N | E. Capacitor | 3.3μF 〃 | 4 |
| C152,252 | QCS11HK-471 | C. Capacitor | 470pF 〃 | 2 |
| C154,254 | QET41AR-476N | E. Capacitor | 47μF 10V | 2 |
| C163,263 | QFM41HJ-102 | Mylar Capacitor | 0.001μF 50V | 2 |
| C164,264 | QCS11HJ-681 | C. Capacitor | 680pF 〃 | 2 |
| C165,265 | QFM41HJ-154 | Mylar Capacitor | 0.15μF 〃 | 2 |
| C167,267 | QFM41HJ-562 | 〃 | 0.0056μF 〃 | 2 |
| C171,271 | QCS12HJ-201 | C. Capacitor | 200pF 〃 | 2 |
| C176,276 | QCY12HK-221 | 〃 | 220pF 〃 | 2 |
| C901,948 | QET41ER-227N | E. Capacitor | 220μF 25V | 2 |
| C902 | QET41HR-475N | 〃 | 4.7μF 50V | 1 |
| C911 | QEB41HM-104M | E. Capacitor (Low Leak) | 0.1μF 〃 | 1 |
| C912 | QET41AR-336N | E. Capacitor | 33μF 10V | 1 |
| C913 | QET41AR-107N | 〃 | 100μF 〃 | 1 |
| C921,950 | QCF11HP-103 | C. Capacitor | 0.01μF 50V | 2 |
| C922 | QFP82AJ-223 | Polypropylene Capacitor | 0.022μF 10V | 1 |
| C929 | QFP42AJ-682 | 〃 | 0.0068μF 10V | 1 |
| C930 | QET40JR-337N | E. Capacitor | 330μF 6.3V | 1 |
| C942 | QET40JR-107N | 〃 | 100μF 〃 | 1 |
| C943 | ⚠QCF11HP-473 | C. Capacitor | 0.047μF 50V | 1 |
| C944 | ⚠QET41VR-108N | E. Capacitor | 1000μF 35V | 1 |
| C945,946 | ⚠QCF12HP-103 | C. Capacitor | 0.01μF 50V | 2 |
| C947 | ⚠QET41ER-108N | E. Capacitor | 1000μF 25V | 1 |
| D101,201,907,908 | OA90 | Diode | | 4 |
| D901~904,906 | MA150 | Diode | | 5 |
| D905,910 | RD6.8E (B) | Zener Diode | | 2 |
| D911,912,915,916 | IDE2-B | Diode | | 4 |
| D917 | ⚠RD5.1F (B) | Zener Diode | | 1 |
| X101,201,102,202 | 2SC1980 (T.U) | Transistor | | 4 |
| X103,203,106,206 109,209,113,213 114,214,902~905 907,910~913 | 2SC1685 (R.S) | 〃 | | 19 |
| X104,204 | 2SC1327 (T.U) MS | 〃 | | 2 |
| X105,205,108,208 | 2SC1327 (T.U) | 〃 | | 4 |
| X107,207,110,210 | 2SC1317 (R.S) NC | 〃 | | 4 |
| X111,211 | 2SC1327 (U) | 〃 | | 2 |
| X901 | 2SA921 (T.U) | 〃 | | 1 |
| X906 | 2SA564 (R.S) | 〃 | | 1 |
| IC101,201 | AN7362 | IC | | 2 |
| IC901 | UPC4557C | 〃 | | 1 |
| IC903 | UPC78M15H | 〃 | | 1 |
| L101,201,105,205 | VQP0001-183S | Inductor | | 4 |
| L102,202 | 〃 -562S | 〃 | | 2 |
| L901 | 〃 102S | 〃 | | 1 |
| T901 | VQH1009-011 | OSC Coil | | 1 |
| S1 | QSL2209-002 | Lever Switch | Input | 1 |
| S2 | QSL2309-002 | 〃 | ANRS | 1 |
| S3 | QSL8409-001 | 〃 | Tape Selector | 1 |
| | VMJ5002-001 | Jack Ass'y | MIC & Headphone | 1 |
| | VMJ6003-002 | 〃 | PIN | 1 |
| CN901 | QMV5005-006 | Plug Ass'y | R/P Head | 1 |
| CN902 | 〃 -003 | 〃 | E Head | 1 |
| | VKL4711-001 | Heat Sink | for Power IC | 1 |
| | LPSP3006ZS | Screw | 〃 | 1 |
| | E43727-002 | Wrapping Tab | | 21 |
| | VMZ0005-001 | Post Pin | | 1 |
| | TAZ000331-02 | Fuse Holder | for Fuse | 4 |
| | QMF51A2-1R25 | Fuse | KD-A33 A/B/E | 2 |
| | ⚠QMF51A2-1R25BS | Fuse | KD-A33B | 2 |
| | TAZ000509-10 | Fuse Seal | T1.25A, KD-A33B | 1 |

## Mecha. Control P.W. Board Parts List

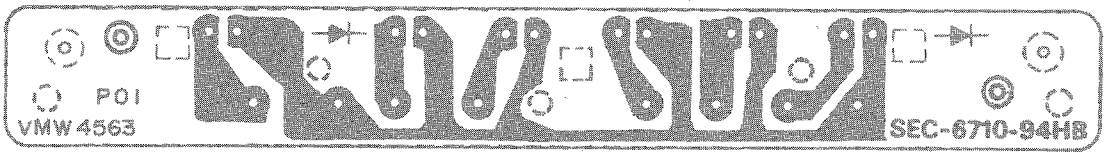
⚠ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

| Ref. No. | Parts No. | Parts Name | Remarks | | Q'ty |
|---|---|---|---|---|---|
| | VMW3530-001 | P.W. Board | | | 1 |
| R501~504 | QRD141J-472S | C. Resistor | 4.7kΩ | ¼W | 7 |
| 518,525,548 | | | | | |
| R506,507 | " -271S | " | 270Ω | " | 2 |
| R510 | " -331S | " | 330Ω | " | 1 |
| R511,515,521,526 | " -103S | " | 10kΩ | " | 6 |
| 528,546 | | | | | |
| R512 | " -153S | " | 15kΩ | " | 1 |
| R513 | QRD143J-121S | " | 120Ω | " | 1 |
| R514 | " -104S | " | 100kΩ | " | 1 |
| R516,517,540 | QRD141J-222S | " | 2.2kΩ | " | 3 |
| R523,532,537,542 | QRD143J-392S | " | 3.9kΩ | " | 4 |
| R527 | QRD123J-122 | " | 1.2kΩ | ½W | 1 |
| R529 | QRD143J-332S | " | 3.3kΩ | ¼W | 1 |
| R530 | " -391S | " | 390Ω | " | 1 |
| R531,545 | " -102S | " | 1kΩ | " | 2 |
| R533,544 | " -393S | " | 39kΩ | " | 2 |
| R534 | QRD141J-221S | " | 220Ω | " | 1 |
| R535 | QRD143J-221S | " | 220Ω | " | 1 |
| R536,539 | QRD141J-101S | " | 100Ω | " | 2 |
| R538,549,550 | QRD143J-103S | " | 10kΩ | " | 4 |
| 553 | | | | | |
| R541 | ⚠ QRG019J-220 | O.M.F. Resistor | 22Ω | 1W | 1 |
| R543 | QRD143J-332S | C. Resistor | 3.3kΩ | ¼W | 1 |
| R547 | " -103S | " | 10kΩ | " | 1 |
| R551 | " -223S | " | 22kΩ | " | 1 |
| R552 | " -101S | " | 100Ω | " | 1 |
| R554 | " -472S | " | 4.7kΩ | " | 1 |
| R555 | " -273S | " | 27kΩ | " | 1 |
| R556 | " -474S | " | 470kΩ | " | 1 |
| R560 | ⚠ QRD126K-220 | Unflammable Resistor | 22Ω | ½W | 1 |
| R561 | ⚠ QRX029J-8R2 | M.F. Resistor | 8.2Ω | 2W | 1 |
| R563 | QRD121K-101 | C. Resistor | 100Ω | ½W | 1 |
| R564 | QRD143J-222S | " | 2.2kΩ | ¼W | 1 |
| R565 | " -562S | " | 5.6kΩ | " | 1 |
| R566 | ⚠ QRD149J-4R7S | Unflammable Resistor | 4.7Ω | " | 1 |
| C501~503 | QCF11HP-103 | F.C. Capacitor | 0.01μF | 50V | 3 |
| C504,507,511 | QET41HR-106N | E. Capacitor | 10μF | " | 3 |
| C505 | QET41HR-474N | " | 0.47μF | " | 1 |
| C506,508 | QET41HR-475N | " | 4.7μF | " | 2 |
| C509,701 | QET41HR-105N | E. Capacitor (Low Leak) | 1μF | " | 2 |
| C510 | QET40JR-477N | E. Capacitor | 470μF | 6.3V | 1 |
| C512 | QET41ER-107N | " | 100μF | 25V | 1 |
| C513 | " -108N | " | 1000μF | " | 1 |
| L701,702 | T41572-001 | Inductor | | | 2 |
| D501~503,505 | MA150 | Si, Diode | | | 4 |
| D504 | RD2.2E (B) | Zener Diode | | | 1 |
| D506 | ⚠ 10E1-B | Si, Diode | | | 1 |
| D701 | 10E1 | " | | | 1 |
| X501~504,506 | 2SC1685 (R.S) | Transistor | | | 10 |
| 513~517 | | | | | |
| X505 | 2SC1384 (R.S )NC | " | | | 1 |
| X507,512 | 2SC1685 (S.T) | " | | | 2 |
| X508,510 | 2SC1383 (R.S) NC | " | | | 2 |
| X509,511 | 2SC1317 (R.S) NC | " | | | 2 |
| X518 | 2SA684 (R.S) NC | " | | | 1 |
| IC501 | M54886P | I.C | | | 1 |
| IC502 | DN6835 | " | | | 1 |

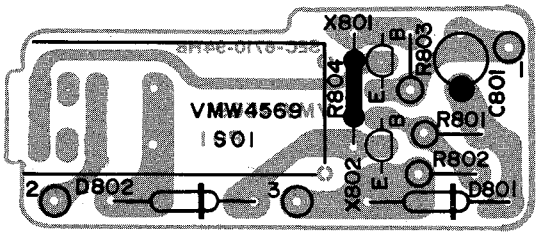
| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| | V44611-002 | F. Bus Wire | 10mm | 5 |
| | V44611-005 | " | 12.5mm | 1 |
| CN501 | QMV5004-010 | Plug Ass'y | | 1 |
| CN502 | " -006 | " | | 1 |
| CN503 | " -010 | " | | 1 |
| CN504 | " -003 | " | | 1 |

# Other P.W. Board Parts

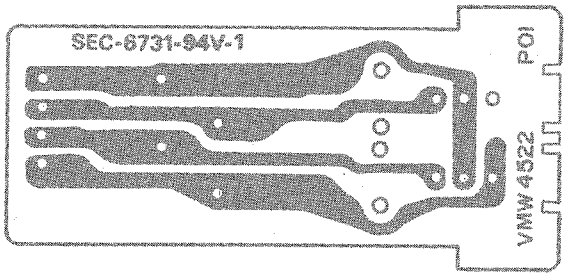
### LED P.W. Board




### Timer Switch P.W. Board

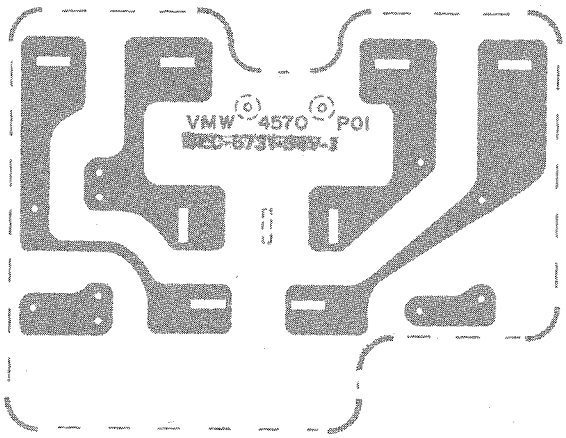



### Slide Switch P.W. Board

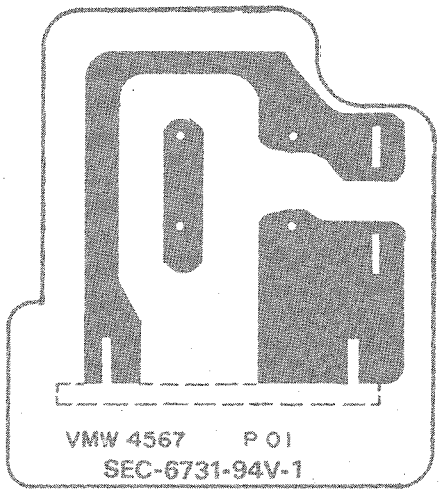



### Power Switch P.W. Board

#### KD-A33 A/B/C/E/J




#### KD-A33U



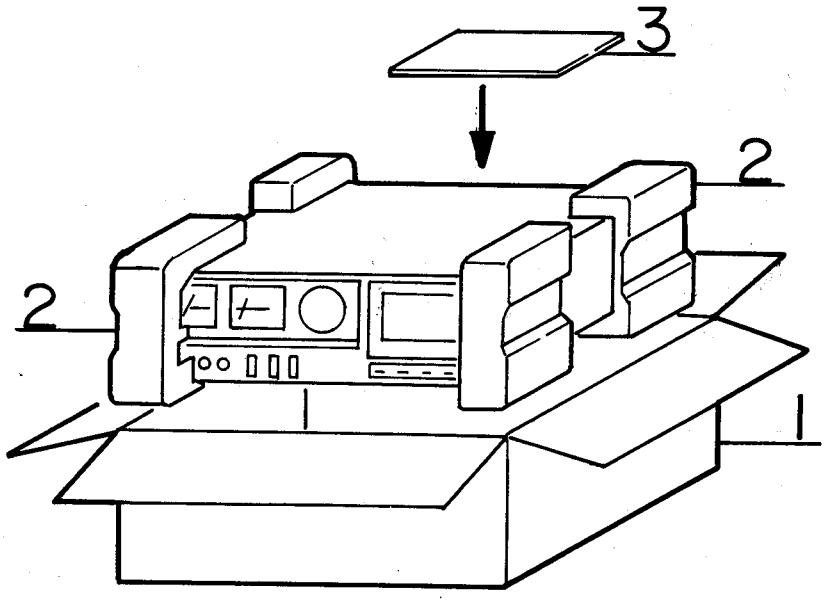
### Other P.W. Board Parts List

| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| **(LED)** | | | | |
| | VMW4563-001 | P.W. Board | | 1 |
| D306 | SLP-155B-01V | LED | | 1 |
| | VJD3214-002 | LED Holder | | 1 |
| **(Timer Switch)** | | | | |
| | VMW4569-001 | P.W. Board | | 1 |
| R801 | QRD143J-683S | C. Resistor | 68kΩ ¼W | 1 |
| R802,803 | " -473S | " | 47kΩ " | 2 |
| R804 | QRD141-683S | " | 68kΩ " | 1 |
| C801 | QET41CR-336N | E. Capacitor | 33μF 16V | 1 |
| D801,802 | MA150 | Si, Diode | | 2 |
| X801 | 2SA564 (R.S) | Si, Transistor | | 1 |
| X802 | 2SC1685 (R.S) | " | | 1 |
| | QSS2301-102 | Slide Switch | for Timer | 1 |
| **(Power Switch)** | | | | |
| | ⚠VMW4570-001 | P.W. Board | Power Switch (KD-A33 A/B/C/E/J) | 1 |
| | ⚠VMW4567-001 | " | Power Switch (KD-A33U) | 1 |
| | ⚠QSP2111-011BS | Power Switch | | 1 |
| C01,C02 | ⚠QFZ9010-103 | M.P. Capacitor | 0.01μF | 2 |
| R01,R02 | ⚠QRD149J-820S | Unflammable Resistor | 82Ω ¼W | 2 |
| | E40130-001 | Tab | | 4 |
| **(Slide Switch)** | | | | |
| | VMW4522-001 | P.W.B. (L) | | 1 |
| | QSP0029-001 | Slide Switch | | 2 |
| | QMV5004-004 | Connector | | 1 |

# Accessories

| Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|
| VMP0002-00A | PIN Cord | KD-A33 A/C/J/U | 2 |
| CN-201 | DIN Cord | KD-A33 B/E | 1 |
| VYA4001-001 | Head Cleaning Stick | | 1 |
| VNN0056-301 | Instruction Book | | 1 |
| VND4013-001 | Warning Label | for Disconnection, KD-A33 A/B/E | 1 |
| T46328-003 | Caution Label | for V Selector, KD-A33 A/B | 1 |
| BT20029B | Warranty Card | KD-A33 A | 1 |
| BT20013C | Guarantee Certificate | KD-A33 B | 1 |
| TJL000443-01 | Seal | Made in Japan, KD-A33 B | 1 |
| | BEAB Label | KD-A33 B | 1 |
| QZL1002-003BS | Warning Label | for 2-pin Power Cord, KD-A33 B | 1 |
| VNC5004-001 | Mark Sticker | DIN45 500, KD-A33 B/E | 1 |
| BT20025C | Warranty Card | KD-A33 C | 1 |
| T44362-001 | CSA Marker | KD-A33 C | 1 |
| TLT000505-01 | UL/CSA Caution Label | KD-A33 C/J | 2 |
| T46328-004 | Caution Label | for Voltage Selector, KD-A33 E | 1 |
| BT20032B | Warranty Card | KD-A33 J/U (U- for PX. EES) | 1 |
| BT20042 | Special Reply Card | " | 1 |
| E7795-1 | EP Mark | for PX. EES, KD-A33 U | 1 |
| V04062-001 | Siemens Plug | KD-A33 U | 1 |
| T46328-001 | Caution Label | " | 1 |
| VNC5311-101 | Caution Card | for EES, KD-A33 U | 1 |
| VPZ4001-001 | Serial Ticket | KD-A33 A/B/E/J/U | 1 |
| T43758-001 | Serial Ticket | KD-A33 C | 2 |

# Packing




## Packing Material Parts List

| Ref. No. | Parts No. | Parts Name | Remarks | Q'ty |
|---|---|---|---|---|
| 1~2 | VPA3135-00B | Packing Case Ass'y | KD-A33A/B/E/J/U | 1 set |
| 1~2 | " -00C | " | KD-A33C | 1 set |
| 1 | VPA3135-005 | Case | KD-A33A/B/E/J/U | 1 |
| 1 | VPA3135-006 | " | KD-A33C | 1 |
| 2 | VPH3111-001 | Cushion (L) | | 1 |
| 2 | VPH3112-001 | Cushion (R) | | 1 |
| | VPK4134-001 | Spacer | | 1 |
| | QPGA060-06005 | Envelope | for Set | 1 |
| | AP4056A-036 | " | for Power cord, Provided cord | 2 |
| 3 | AP4056A-077 | " | for Instruction Book | 1 |
| | TKS000501-08 | Sheet | for Set | 1 |

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